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Volume II—Just Ready
Bockus' Gastro-enterology

The first two volumes of Dr. Henry L. Bockus' *new* 3-volume work on *Gastro-enterology* are now ready. *Volume I,* published recently, deals with the Esophagus and Stomach—*Volume II,* just off press, covers the Small and Large Intestines and Peritoneum.

All those outstanding features that are gaining such universal approval for Volume I, are true of Volume II. In every detail, it is a worthy companion to Volume I. In it, Dr. Bockus stresses the significance of the various clinical and laboratory procedures, particularly as they relate to diseases of the mesenteric small bowel. Especially valuable are the chapters on regional ileitis, tuberculosis of the intestines, and steatorrhea, the discussions of intestinal obstruction and diseases of the appendix. Disorders of the large bowel and colon are taken up completely. Diarrhea, the colonic neuroses, the clinical applications of peritoneoscopy and pneumoperitoneum, etc. are covered thoroughly.

Volume III, dealing with the Liver, Biliary Tract, Pancreas and Secondary Gastro-intestinal Disorders will follow. There will be a separate desk index volume.

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MANAGEMENT OF THE VENEREAL DISEASES IN THE ARMY

LIEUTENANT COLONEL THOMAS B. TURNER
AND
MAJOR THOMAS H. STERNBERG
MEDICAL CORPS, ARMY OF THE UNITED STATES

During recent months the rate of venereal infection in the Army has been below preceding peacetime levels and less than half that recorded during the first world war. Days lost per thousand men annually have dropped from 1,278 in 1940 to a level of approximately 400 at the present time. Nevertheless venereal disease patients accounted for approximately 2,824,000 hospital bed-days during the twenty month period from January 1942 to September 1943.

Determined efforts have therefore been made to reduce this manpower loss through measures aimed at the prevention of infection and through the more efficient treatment of the individual after infection. Since no sharp line can be drawn between prevention and treatment, responsibility for the formulation of policies and plans covering the entire venereal disease problem has been centralized in one branch of the Surgeon General's Office. The preventive program has been outlined elsewhere.[1] Briefly, reliance is placed on instruction of the individual soldier, on prophylaxis and, in cooperation with civilian agencies, on furthering those measures designed to reduce the potential sources of infection in the community. Gratifying results have been achieved in preventing venereal disease, as evidenced by the maintenance of a low infection rate, and new discoveries and changing administrative procedures have virtually revolutionized the treatment of these diseases.

In reviewing the treatment aspect of this program it should be pointed out that the Surgeon General's Office in initiating changes and promulgating new policies has had the benefit of the advice of the most eminent civilian specialists in the country, as well as those now in the armed services. Particular acknowledgment should be made of the valuable help received from members of the National Research Council.[2]

SYPHILIS

The treatment of syphilis presents a real problem to the modern army. Both the training program and actual campaigns are so arduous that soldiers who are physically under par fall short of requirements and serve as a drag on the group to which they are attached. Although symptoms caused by early syphilis can be quickly eliminated, treatment itself may result in morbidity; while continuation of treatment over long periods presents numerous administrative difficulties. Military requirements are best served by a system of treatment covering the shortest possible time consistent with safety to the patient and therapeutic efficiency.

Routine Treatment.—In July 1942, on recommendation of the venereal disease subcommittee of the National Research Council, the scheme of treatment of early and latent syphilis was substantially altered in two respects. First, arsenoxide (mapharsen) was recommended to the exclusion of the other arsenicals, and, second, the scheme of treatment was changed from alternating courses of an arsenical and a bismuth preparation given in weekly injections covering a period of one to two years to an intensified and shortened treatment scheme consisting of forty injections of arsenoxide administered twice weekly with additional injections of bismuth, covering a total of twenty-six weeks. The actual treatment scheme is given in the accompanying tabulation. The recommended individual dose of arsenoxide is 60 mg. and of bismuth subsalicylate 0.2 Gm. in oil.

This treatment scheme has been in effect only a little over a year, and no accurate data are available on the results in terms of the percentage of patients cured. Since this system is merely a modification of older ones and the total amount of arsenoxide administered (2,400 mg.) is about the same, it is assumed that the end results will not differ significantly, and that cures will be effected in not less than 85 per cent of cases of early syphilis.

The short term results have been excellent. From the standpoint of toxic reactions and practicability of administration, the newer scheme appears to be definitely superior to the older one. Persons with primary or secondary syphilis are hospitalized for a few days until open lesions have healed. Treatment is then carried on by unit medical officers.

Intensive Arsenotherapy.—Intensive methods of arsenotherapy, such as the five day intravenous drip proposed by Hyman, Chargin and Leifer,[3] and the

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Read at the fifteenth annual scientific assembly of the Medical Society of the District of Columbia, Oct. 1, 1943.

From the Venereal Disease Control Branch, Preventive Medicine Division, Office of the Surgeon General, U. S. Army.

1. Turner, T. B., and Brumfield, W. A., Jr.: The Control of Venereal Disease in the Army, Am. J. Syph., Gonor. & Ven. Dis., to be published. Turner, T. B.: Immediate Wartime Outlook and Indicated Postwar Conditions with Respect to the Control of the Venereal Diseases, Am. J. Pub. Health **33**: 1309 (Nov.) 1943.

2. The Venereal Disease Subcommittee of the National Research Council comprises the following members: Drs. Joseph Earle Moore, chairman, John H. Stokes, Oscar F. Cox Jr., Charles Walter Clarke, Nels Nelson, John F. Mahoney and Russell D. Herrold.

3. Hyman, H. T.; Chargin, L., and Leifer, W.: Massive Dose Arsenotherapy of Syphilis by Intravenous Drip Method: Five Year Observations, Am. J. M. Sc. **197**: 480 (April) 1939.

modifications employed by Schoch and Alexander [4] and Thomas and Wexler [5] would appear to offer many advantages to the armed services. The available evidence indicates that the results achieved by these methods in early syphilis are equal to those obtained by the routine treatment just described, but no intensive method has been adopted by the Army for routine use because of the enhanced risk of serious reaction and death that is inherent in these methods. In all the large series which have thus far been reported [6] death has occurred in the proportion of 1 to approximately 250 patients treated, a mortality rate from treatment alone which must be compared with not more than 1 death in 5,000 when arsenoxide is given by routine methods.

The one day method of Simpson, Kendell and Rose,[7] in which arsenoxide and fever therapy are combined, has the further disadvantage of being technically more difficult and no less risky than the five day intravenous

Treatment Scheme

Week	
Arsenoxide (mapharsen) intravenously twice weekly, total 20 injections	1–5: Bismuth subsalicylate intramuscularly once weekly, 5 doses
	6–10: Omit bismuth for 5 weeks
Omit arsenoxide (mapharsen) for 6 weeks	11–16: Bismuth subsalicylate intramuscularly once weekly, 6 doses
Arsenoxide (mapharsen) as in first course, twice weekly, total 20 injections	17–21: Omit bismuth for 5 weeks
	22–26: Bismuth subsalicylate intramuscularly once weekly, 5 doses

drip. The system proposed by Eagle and Hogan,[8] in which arsenoxide is given triweekly for a period of eight to twelve weeks, likewise appears to offer no advantages over more prolonged schemes; for while the mortality rate seems to be lower than with more intensive methods, milder reactions are sufficiently common to interfere seriously with the soldier's activities during the treatment period.

The importance of the contribution of Hyman and his co-workers in demonstrating the practicability of the five day treatment, if one is prepared to accept the risk, must not be minimized. This concept has already led to intensification of so-called routine treatment, and studies by numerous investigators both in the clinic and in the laboratory are rapidly determining those time-dose relationships which will yield a high proportion of cures in a short period of time with relative safety to the patient.

Mahoney and his co-workers [9] have recently reported on the apparent effectiveness of penicillin in early syphilis. The import of this observation is stupendous and cannot be evaluated at this writing.

Biologic False Positive Serologic Tests.—Another point of importance which has been emphasized by Army experience concerns the frequency of biologic false positive serologic tests for syphilis. It has long been known that certain febrile diseases, such as malaria and respiratory infections, give rise to an increase in "syphilitic" reagin in the blood, sufficient in some instances to cause a frankly positive serologic test.

The Army is in a unique position to obtain further data on this perplexing problem. For the first time in history we now have a vast number of individuals under close observation, whose serologic status was determined prior to entering the Army, who since induction have been subjected to frequent inspections for the detection of venereal disease, and whose serologic status has been observed during the course of and subsequent to vaccination procedures and various acute illnesses.

The results of some of these observations have been presented by Arthur and Hale,[10] Loveman [11] and Rosenberg.[12]

In brief, it is clear that the ordinary precipitation and complement fixation tests become positive in a high proportion—certainly not less than 15 per cent—of individuals following vaccination for smallpox with take and during the course of a great variety of acute febrile diseases. The "syphilitic" reagin commonly reaches its highest point within one to three weeks and then gradually declines, so that the serum will usually give a negative test within six weeks. Medical officers have therefore been cautioned that positive or doubtful serologic reactions occurring in individuals following vaccination procedures, or in those who have recently had acute infections, should not be considered indicative of syphilis. It is recommended that such individuals who have no conclusive history or clinical manifestations of syphilis be followed serologically and without treatment for a period of three months, serologic tests being performed each two to four weeks. At the end of this period those in whom the serologic reaction has reversed to negative are discharged from observation as nonsyphilitic; those showing a persistently positive test are regarded as syphilitic, and those still showing conflicting serologic reactions are subjected to further observation and study.

GONORRHEA

As a medical problem gonorrhea is totally different from that which it was five years ago. Approximately 70 per cent of persons with uncomplicated gonorrhea

4. Schoch, A. G., and Alexander, L. J.: Short Term Intensive Arsenotherapy of Early Syphilis: Preliminary Report, Am. J. Syph., Gonor. & Ven. Dis. **25**: 607 (Sept.) 1941.

5. Thomas, E. W., and Wexler, Gertrude: Rapid Treatment of Early Syphilis with Multiple Injections of Mapharsen, Am. J. Pub. Health **31**: 545 (June) 1941.

6. Moore, J. E.: The Modern Treatment of Syphilis, ed. 2, Springfield, Ill., Charles C Thomas, Publisher, 1943.

7. Simpson, W. M.; Kendell, H. W., and Rose, D. L.: Treatment of Syphilis with Artificial Fever Combined with Chemotherapy: Results of Ten Years of Experience; Critical Review, Ven. Dis. Inform., 1942, supp. 16, p. 1.

8. Eagle, H., and Hogan, R. B.: An Experimental Evaluation of the Intensive Methods for the Treatment of Syphilis: III. Clinical Implications, Ven. Dis. Inform. **24**: 159 (June) 1943.

9. Mahoney, John F.; Arnold, R. C., and Harris, A. D.: Penicillin Treatment in Early Syphilis, to be published.

10. Arthur, Robert D., and Hale, John M.: Biologic False Positive Tests for Syphilis Associated with Routine Army Immunizations, Mil. Surgeon **92**: 53 (Jan.) 1943.

11. Loveman, A. B.: False Positive Serologic Reactions for Syphilis: Report of 100 Cases Following Routine Army Immunization and Upper Respiratory Infections, to be published.

12. Rosenberg, Arthur A.: The Effect of Malaria on the Common Serological Tests for Syphilis, to be published.

respond within five to seven days to one course of sulfathiazole or sulfadiazine, another 10 to 15 per cent respond to a second course, and virtually all of the remainder can be cured within forty-eight hours with penicillin when that precious drug becomes more readily available.

The following data for the Army show the revolutionary changes that have taken place. During the years 1934 to 1937 inclusive persons with gonorrhea were hospitalized on an average of more than fifty days each. The average days of hospitalization declined to forty-five days in 1939, thirty-five in 1940 and twenty-two in 1941. Provisional data indicate that the average number of days lost per case is now under fifteen, and this figure can certainly be further reduced by the use of penicillin.

During the same period the frequency of complications has shown a striking decline. In 1937, 28 per cent of persons with gonorrhea developed some disabling complication. This proportion dropped to 12 per cent in 1939, 8 per cent in 1940 and 6.6 per cent in 1941. Current data indicate that less than 2 per cent of infected patients now develop complications. Facts of great significance are that with the increased use of sulfonamides in the treatment of gonorrhea the employment of local treatment for this condition has steadily decreased. The relationship of these changes in the management of gonorrhea to the duration of the disease and the development of complications is apparent.

Drugs Employed.—In the beginning of the sulfonamide era sulfanilamide was used in the treatment of gonorrhea. This was superseded by sulfapyridine and sulfathiazole. The latter drug, even in smaller doses than is now recommended, proved to be distinctly more effective and less toxic than sulfapyridine. Because of the factors of supply and cost, sulfathiazole is now employed routinely in the treatment of gonorrhea, although the use of sulfadiazine is also approved. There is no convincing evidence that for this purpose one is superior to the other.

Treatment is routinized as far as possible. For patients treated on a duty status and not hospitalized the recommended course of treatment is 4 Gm. of sulfathiazole a day for five days, given in doses of 1 Gm. four times daily. For hospitalized patients a higher dosage is recommended, as follows: 4 Gm. initially, followed by 1 Gm. every four hours day and night for five days, or a total of approximately 33 Gm.

Results of Treatment.—Data for the Army as a whole on the results of treatment of gonorrhea since the introduction of sulfathiazole are not yet available, but fragmentary reports from many stations and more complete data from a few of the larger stations permit certain generalizations. First, over three fourths of all patients with uncomplicated gonorrhea respond to one or two courses of a sulfonamide drug. Second, Negro patients respond more favorably than white. Third, the incidence of complications is exceedingly low. Fourth, toxic reactions from sulfathiazole present no serious problem, for even moderately severe reactions are uncommon and serious reactions are exceedingly rare. Fifth, when patients are treated on an ambulatory basis the end results in terms of proportion cured, complications and drug reactions appear to be nearly as favorable as when treatment is given in a hospital.

The following data, accumulated over a period of months, give point to the foregoing statements: In a recent analysis of 2,100 cases of acute gonorrhea treated in one large station hospital [13] of 804 white patients 81.5 per cent responded to two courses of sulfathiazole (20 Gm. each), while of 1,296 Negro patients 96.6 per cent recovered on the same treatment scheme. The proportion responding to the first course of sulfathiazole was white 65.2 per cent and Negro 91.8 per cent. A majority of the patients in this series were observed for three weeks or longer after the initiation of treatment. Epididymitis was observed in 1.1 per cent of cases and arthritis in 0.1 per cent. The incidence of each complication was slightly, though not statistically significant, higher in white than in Negro patients. Reactions from sulfathiazole, such as vomiting, elevated temperature, hematuria or dermatitis, were encountered in 1.1 per cent of this series.

From the same station [13] an analysis of the results of treatment given on an ambulatory basis to 1,170 patients shows the following: Of 192 white patients 81.2 per cent were asymptomatic after two courses of sulfathiazole, and of 978 Negro patients 95.4 per cent were asymptomatic after the same treatment. Epididymitis was observed in 0.2 per cent. Drug reactions occurred in 0.4 per cent. These data are not strictly comparable to those cited for the hospitalized patients, since the patients treated on an ambulatory basis were largely drawn from the reception center where individuals are on temporary duty prior to proceeding to a permanent assignment, and follow-up observation was therefore not as complete.

In a series of 1,694 patients treated in another large station hospital [14] by a dosage schedule approximating the larger (33 Gm.) of the two referred to, 82.4 per cent of the patients responded to the first course and another 10 per cent to a second course of sulfathiazole, giving a successful outcome in a total of 92.4 per cent with two courses. Epididymitis was observed in 0.5 per cent and arthritis in 0.3 per cent. Considerably more than half the patients in this series were Negroes.

In another large station hospital,[15] of 770 patients with gonorrhea treated with the higher dosage schedule 85.4 per cent responded to the first course and 6.7 per cent to a second course, or a total of 92.1 per cent. Approximately 80 per cent of this series of patients were Negroes.

Of 1,117 patients treated for gonorrhea on a duty status at a number of stations of the Army Air Forces 75.7 per cent responded to two courses or less.[16] Most of these patients were white.

It has been suggested by a number of observers that the proportion of sulfonamide failures is increasing, perhaps because of an increase in drug resistant strains of Neisseria gonorrhoeae. We have been unable to obtain evidence to support this suggestion.

13. From data collected by Major G. Campbell, M. C., and Capt. G. R. Carpenter, M. C., Fort Bragg, North Carolina.
14. From data collected by Major H. H. Curd, M. C., Fort George P. Meade, Maryland.
15. From data collected by Major E. Greenwald, M. C., Fort Belvoir, Virginia.
16. From data supplied by Major R. Dyar, M. C., and Major J. R. Scholtz, M. C., Office of the Air Surgeon.

Duty Status Treatment.—For many years soldiers with gonorrhea have been routinely hospitalized for treatment. Following a demonstration initiated and carried out under the supervision of Col. Sanford W. French, chief surgeon of the Fourth Service Command, the treatment of uncomplicated gonorrhea on a duty status was authorized for the Army as a whole in the early part of 1943. Present recommendations concerning duty status treatment call for one course of sulfathiazole to be given while the patient is carrying on his normal activities. If symptoms have not subsided within seven days after the beginning of treatment the patient is hospitalized and given a second course of sulfathiazole according to the higher dosage schedule mentioned.

While treatment of uncomplicated gonorrhea on a duty status is now widely practiced in the Army, there is still considerable discussion concerning whether in the long run hospital days are actually saved by this system. It is contended by some medical officers who have given thought to the problem that prompt hospitalization with the use of the higher dosage schedule will yield a lower proportion of sulfonamide failures. Data adequate to permit a conclusive answer on this point are not yet available. It is our opinion, however, that treatment of uncomplicated gonorrhea on an ambulatory basis is wholly practicable under most circumstances, and that the results are significantly inferior to those obtained by hospital treatment only when adequate care is not or cannot be taken to insure that the infected soldier receives his medicine at the proper time and in the proper dosage. There is no evidence indicating that ambulatory treatment is accompanied by an increase in the incidence of complications.

Despite theoretical arguments frequently advanced concerning the danger of patients with gonorrhea to their barrack mates, we have yet to learn of a case of gonorrhea acquired from toilet seats, towels or by means other than sexual contact. Gonococcic ophthalmia, even among persons with gonorrhea, has been encountered extremely rarely. In order to protect the civilian community, patients with gonorrhea are restricted to the organizational area for three weeks after the disappearance of urethral discharge.

Sulfonamide Failures.—It is estimated that fully 50 per cent of the total days lost from duty because of gonorrhea are accounted for by the 10 to 20 per cent of those patients who fail to respond to two courses of sulfathiazole or sulfadiazine and are classed as sulfonamide resistant. These patients were exceedingly difficult to cure by means formerly available. Some seem to respond to continuing doses of sulfonamides, others appear to be benefited by local instillations of a silver salt, while some become asymptomatic after many weeks with little or no treatment. Until the advent of penicillin, fever therapy—eight hours of continuous fever at a temperature of 106 F.—combined with sulfonamides by mouth was the only method by which resistant patients could be promptly cured.

In order to reduce the manpower loss occasioned by these resistant patients, facilities for fever therapy are provided in general hospitals. However, this method of treatment is expensive in terms of personnel and equipment; it is not without risk to the patient and can be justified only on the basis of military necessity. It is hoped that enough penicillin will soon be available to treat all of these patients and render it unnecessary to use fever therapy.

Penicillin.—This remarkable drug bids fair to reduce gonorrhea to the status of an inconsequential infection. On receipt of reports from Mahoney prior to publication of the observations made by him and his co-workers[17] the Army initiated in May 1943 clinical studies in a number of hospitals with a view to determining the smallest dose of penicillin which appears to yield a high proportion of cures.

Groups of patients proved to be refractory to at least two courses of sulfathiazole or sulfadiazine and in some cases to fever therapy were treated with a total dosage of 160,000, 120,000, 100,000, 80,000 and 40,000 Oxford units, respectively. Approximately half of each group was given 10,000 units every three hours, and the other half 20,000 units at the same interval. Most treatments were given intramuscularly, and this route was shown to be superior to intravenous administration.

The results of these clinical studies will be reported in detail elsewhere. To summarize them briefly, better than 95 per cent of each group receiving a total dosage of 80,000 units or above were cured as determined by culture of the prostatic secretion at the end of seven, fourteen and twenty-one days after the initiation of treatment. Even with 40,000 units there were less than 15 per cent failures.

In those patients who responded, cure was effected with extraordinary rapidity, subjective and objective improvement occurring in most cases within twenty-four hours after the beginning of treatment. Cultures were often negative in twenty-four hours and almost invariably so in forty-eight hours. In a fair proportion of treated patients a very slight mucoid discharge persisted for one or two weeks, but no organisms were demonstrable on smear or culture and the slight discharge is regarded as being of no significance. Failures on any of the dosage schedules employed were usually evident by the end of the first week. Some penicillin resistant patients simply failed to show any improvement, while others improved symptomatically and then relapsed. Relapses were rarely observed after ten days. Persistent infections in the absence of symptoms were only rarely observed, and these occurred principally with the lower doses. Nearly all of a number of patients who failed to respond to the first course of penicillin were cured by retreatment with 10,000 units of penicillin every hour for ten doses.

In view of the limited supply of penicillin, use of the drug is being largely restricted to theaters of operation where an effort must be made to keep every soldier on the job. While a total dosage of 80,000 to 100,000 units per case gives better results, a course of treatment consisting of 10,000 units intramuscularly every three hours for five doses, or a total of 50,000 units, is recommended, with recognition that 10 to 20 per cent failures may be expected at this dosage level. Failures with the first course are retreated with penicillin, a total dosage of 100,000 units per case being used.

17. Mahoney, J. F.; Ferguson, Charles; Buckholtz, M., and Van Slyke, C. J.: The Use of Penicillin Sodium in the Treatment of Sulfonamide Resistant Gonorrhea in Men, Am. J. Syph., Gonor. & Ven. Dis. **27**: 525 (Sept.) 1943.

Further studies are being carried out with a view to determining those factors that enhance the chance of cure.

Local Treatment.—For many years Pelouze [18] has been pointing out that complications of gonorrhea often occur as a result of faulty treatment rather than as a natural consequence of the disease, and he has labored to impress on physicians the importance of avoiding manipulative procedures which might traumatize the urogenital tract. During the past year the Army has provided a convincing demonstration of the soundness of that point of view.

As might be expected in a field which is changing so rapidly, practice varies widely from one hospital to another. At one end of the scale are those hospitals in which gonorrhea is treated in the medical service and the patients receive no local treatment whatever. At the other end of the scale are those in which manipulative procedures, instillations and irrigations are utilized in addition to the sulfonamides by mouth. It can be said categorically, it is in those Army hospitals in which reliance is placed on internal medication and forced fluids to the exclusion of local treatment that the best results are being obtained. Nothing appears to be gained by urethral instillations, prostatic massage or the passing of sounds in the ordinary case of uncomplicated gonorrhea, and the proportion of complications appears to be significantly higher where these procedures are employed. Fortunately, practice in the Army is veering sharply away from these methods.

Cases occur, of course, in which some local treatment is indicated, but these are the exception rather than the rule. If a patient with gonorrhea has phimosis or urethral stricture, these anatomic defects must be corrected; but meddlesome manipulation serves no useful purpose.

Tests of Cure.—Formerly it was the practice in the Army to rely entirely on smears or cultures of the urogenital fluids in determining cure of gonorrhea in the male. These procedures are no longer required in cases which respond promptly to sulfathiazole. Reliance is now placed principally on clinical observation in these cases. The reasons for this change are twofold. First, experience over a period of many months revealed that among patients with uncomplicated gonorrhea who responded promptly to sulfathiazole and who continued to show no evidence of urethral discharge only a small percentage showed gonococci in the prostatic fluid by smear or culture at the end of the third week. Since a large amount of laboratory work was being done in order to detect a negligible number of latent infections, the results were believed not to be commensurate with the work involved. Secondly, for the reasons cited in the foregoing section it is highly desirable to avoid prostatic massage whenever possible.

Patients with acute gonorrhea who respond to sulfathiazole are observed clinically and with the aid of the two glass test of the urine for three weeks and are discharged from observation if asymptomatic at the end of that period. Smears and cultures of the prostatic fluid are still made as a test of cure in those patients who are sulfonamide resistant.

18. Pelouze, P. S.: Gonorrhea in the Male and Female, ed. 3, Philadelphia, W. B. Saunders Company, 1939.

CHANCROID

Among troops stationed in this country chancroidal lesions comprise about 6 per cent of all cases of venereal disease. In certain theaters of operation these lesions present a greater problem. In somewhat over 50 per cent of patients with lesions clinically resembling chancroid there is a favorable response to sulfathiazole. In the remainder the lesions are often quite refractory to treatment. Since the diagnostic methods usually available are often none too reliable, it is possible that more than one etiologic entity is being encountered. Further clinical and bacteriologic studies on this problem are needed.

OTHER VENEREAL DISEASES

Lymphogranuloma venereum and granuloma inguinale are commonly considered as the other members of the group of venereal diseases. The incidence of these two diseases in the Army is relatively low and they have thus far presented no serious problem.

CONCLUSIONS

From recent Army experience in the management of venereal disease, several conclusions may be drawn. First, while the treatment of syphilis has been greatly improved, no method of therapy yet developed is entirely satisfactory. The problem is of sufficient importance to justify speedy exploration of all new leads.

Secondly, biologic false positive serologic tests occur often enough after vaccination procedures and following acute febrile illnesses to constitute a serious diagnostic problem. Under such circumstances follow-up observations are necessary in order to avoid treating individuals for syphilis in the absence of infection.

Thirdly, the treatment of gonorrhea has become largely one of internal medication. Urethral instillations, prostatic massage and the passage of sounds are contraindicated in the early phase of the disease for they frequently induce complications.

Fourthly, penicillin promises materially to change the management of gonorrhea. When supplies of this drug become readily available, sulfonamide resistant gonorrhea should no longer be a problem, and the necessity for long continued treatment or for the use of fever therapy in these cases will have been eliminated.

Finally, certain administrative practices and social attitudes, valid perhaps in an earlier day, are now hampering the full application of the remarkable scientific advances made in the treatment of these diseases. Medical treatment is now so effective that diseased persons can promptly be rendered noninfectious and returned to duty as functioning members of the group. Any measures, therefore, which tend to keep the infected person away from medical care are directly opposed to the best interests of the individual, the organization to which he belongs and the community. Stoppage of pay, prejudicial treatment from employers or superiors, restrictions on advancement, can only serve as powerful factors tempting the individual to conceal his infection and delay treatment until its effectiveness is reduced. The sooner discriminatory practices are abolished and syphilis and gonorrhea regarded as other infectious diseases, the sooner will it be possible to realize the full benefits of recent scientific progress.

SUBLINGUAL ADMINISTRATION OF DRUGS

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In discussions of therapeutic technics there is frequently recurring opinion to the effect that any of the potent nonirritant drugs may be effectively administered by simple application to the oral mucosa.[1] Very few drugs, however, are routinely used in this way in regular practice. Recently there were recommendations, both in this country [2] and in England,[3] that morphine be administered sublingually in those wartime emergencies in which hypodermic injections were not possible. The recommendation was challenged [4] and, fortunately, has not been generally accepted. These contradictory opinions demonstrate that there does not exist any clear and general recognition of the scope and limitations of this particular therapeutic technic.

Penetrability of Drugs

Alkaloid	Fat Solubility, Mg./Cc.	Water Solubility, Mg./Cc.	Fat-Water Solubility (Distribution) Coefficient	Ratio of Sublingual to Equally Effective Subcutaneous Dose	Criterion for Measuring Drug Effects
Cocaine	45.0	1.4	32	2	Excitement
Apomorphine	1.8	0.09	20	2	Emesis
Diacetylmorphine	10.0	0.6	17	3	Thierry fistula tracing
Strychnine	3.2	0.12	27	4	Convulsions
Thebaine	8.0	0.7	12	4+	Hyperexcitability
Emetine	10.0	1.1	9	6+	Emesis
Atropine	14.0	1.8	8	8	Thierry fistula tracing
Morphine	0.05	0.22	0.22	10	Thierry fistula tracing
Dihydromorphinone	0.4	2.0	0.2	15	Thierry fistula tracing
Codeine	16.0	8.0	2.0	15+	Thierry fistula tracing

The effectiveness or ineffectiveness of this technic can be determined easily and, in fact, has been determined for many of the common drugs. The methods for establishing such data are simple but do involve more than the mere sublingual administration of drugs in their ordinary subcutaneous doses. Sublingual trials with minimally effective doses do not ordinarily permit positive conclusions, and this is the sort of experimentation which has led to the numerous unreliable impressions which have been reported from time to time. This is particularly true if the only criterion of effects is the comment of patients regarding their subjective sensations. To be certain that a drug is not effective by sublingual administration it might be considered necessary that it be administered in doses several times larger than the minimally effective subcutaneous dose. If, for instance, atropine is ineffective in successive trials with increasing sublingual doses up to 10.0 mg., it can be safely accepted that atropine in ordinary doses (0.5 to 1.0 mg.) is not effective by sublingual application. This sort of experiment might involve some hazard for the human subject, but the hazard actually can be reduced to slight significance by a process of cautiously increasing the doses through successive trials after starting with the ordinary subcutaneous doses. Additionally a method of preliminary animal experimentation is available which has proved to be a reliable guide. Dogs can be managed in such a way as to avoid or minimize swallowing and, as a further method of proof for those few drugs which are well absorbed, dogs can be used after esophageal operations which completely exclude the possibility of swallowed drugs passing into the stomach or intestine. Also in dogs, fistula, tone changes, blood pressure changes, anesthesia, excitation and other methods can be used as a suitable means of bioassaying the extent of drug absorption. Without exception, drugs are more readily absorbed from the sublingual area of the dog than from the same area in man. Hence a drug which does not penetrate the mucosa of a dog can be applied experimentally to the mucosa of human subjects in relatively large doses with assurance that effects will not be obtained.

In the course of experimentation it has been found that the penetration of drugs through the oral mucosa is strictly a selective process. Some few drugs penetrate readily and can be practically administered in this way, others penetrate only when larger doses are applied, while others seem to be almost incapable of any significant degree of penetration. The most important determining factor is the fat-water distribution coefficient. The penetrability of drugs is so conditioned by this simple physicochemical constant that their penetrability may be predicted with fair accuracy in advance of any biologic tests. This is particularly true within a given group of chemically related drugs as, for instance, the group of alkaloids. The accompanying table gives data of this sort for a number of the common alkaloids.[5] Penetrability, as here determined in dogs, is expressed as the ratio:

$$\frac{\text{Dose producing definite effects by sublingual application}}{\text{Dose producing same effects by subcutaneous administration}}$$

This ratio can be taken as a reasonably satisfactory expression of the ability of a drug to penetrate the oral mucosa; the smaller the factor, the greater the penetrability.

The correlation in the table shows irregularities, and this might naturally be expected from the type of experiments involved. There are obviously several other factors than the one correlated here. The absolute doses, the degree of irritation, the production of salivation, vasoconstrictor effects and other factors are capable of affecting the absorption behavior. With apomorphine and cocaine, for instance, there is a wide disparity of absolute dose in these experiments. This also affects the comparison of codeine and dilaudid. With strychnine the intense bitterness no doubt adversely affects its absorption results. Even with this necessary disparity of conditions, the table demonstrates a significant trend which is sufficiently valid to distinguish those drugs which are incapable of practical sublingual administration from those which may possibly be given by this route.

From the Department of Pharmacology, Medical College of the State of South Carolina.

1. Fantus, Bernard: Technic of Medication, Chicago, American Medical Association Press, 1938, pp. 233-237. Barth, K.: Die Benutzung der Aufsaugfähigkeit der Mundschleimhaut zur Einverleibung von Heilmitteln und ihr Vorzug, Med. Welt **15**: 241, 1941. Kakowsky [Introduction of Drugs into the Organism by Sublingual Administration], Sovet. med. **4**: 24 (No. 12) 1940. Conferences on Therapy: Routes of Administration of Drugs, J. A. M. A. **114**: 1447 (April 13) 1940.

2. Sublingual Administration of Morphine, Queries and Minor Notes, J. A. M. A. **120**: 1349 (Dec. 19) 1942.

3. Morphia After Injuries, editorial, Lancet **2**: 759, 1942.

4. Davis, David: Administration of Morphine, J. A. M. A. **121**: 1316 (April 17) 1943. Davis, David, and Ayman, David: Sublingual Absorption of Drugs: Morphine, Arch. Int. Med. **41**: 231 (Feb.) 1928.

5. Walton, R. P.: Absorption of Drugs Through the Oral Mucosa: III. Fat-Water Solubility Coefficient of Alkaloids, Proc. Soc. Exper. Biol. & Med. **32**: 1488, 1933.

A number of the more common drugs can be considered individually and their absorption behavior explained on the basis of this correlation. The following summary is based chiefly on a review of the literature but also includes a number of unpublished observations.

DRUGS WHICH PENETRATE READILY

Organic Nitrates.—Glyceryl trinitrate is the one drug whose absorption by sublingual application has been undisputed over the several decades it has been effectively used in this way. Ample documentary evidence for its absorption has been furnished by Grossmann and Sandor [6] and by Evans and Hoyle.[7] Its relatively high solubility in fats (100 mg. per cubic centimeter) is clearly based on its chemical similarity to fats, since it is a triester of glycerin. Its distribution coefficient is exceptionally high, Krantz and his co-workers [8] reporting it as 1,820.

Erythrityl tetranitrate, being simply a higher homologue of the preceding, has essentially the same type of solubility characteristics. Krantz and his associates report its fat-water distribution coefficient as 290. Its penetrability through the oral mucosa has been demonstrated in human subjects by determinations of blood pressure, observations of face flushing and subjective sensations of head fulness, weakness and headache. Since the blood pressure changes with this drug are very moderate, it is considered that the other criteria are more significant. Eighteen trials in 8 human subjects with doses of 32 to 64 mg. have demonstrated the validity of this method of administration.[9]

Steroid Hormones.—Adequate demonstrations have shown the effectiveness of some of the steroid hormones by this method of administration. This is a development of the past few years and might have been anticipated from the recognized fat solubility of these compounds. Numerous observations, further, have demonstrated the effectiveness of these drugs by percutaneous administration. The range of fat-water distribution coefficient for the various steroid hormones is in the neighborhood of 40 to 2,000 according to data supplied by the Ciba Pharmaceutical Products, Inc.

Androgens.—Testosterone compounds, used in solutions of propylene glycol or in specially prepared compressed tablets, have been shown to be effective by sublingual application.[10] Spence,[11] treating a surgical castrate, found that about 10 mg. of methyl testosterone sublingually was equal to 15 mg. swallowed. He considered the sublingual dose of methyl testosterone to be about four times the dose of testosterone propionate intramuscularly. Lisser, Escamilla and Curtis,[12] using propylene glycol solutions of these androgens sublingually, successfully treated 5 typical eunuchoids who had received previous therapy and 4 previously untreated hypogonadal patients. A solution containing 25 mg. per cubic centimeter was used and total daily doses of 10 to 25 mg. administered. Striking objective and subjective benefits were obtained. In some cases the sublingual effective dose was one-third the similarly effective oral dose, in some cases one-half as much as the oral dose was required and in other cases about as much was required sublingually as orally. The oral dose was considered about twice the intramuscular dose. Sublingually, free testosterone was more effective than either methyl testosterone or testosterone propionate. Lisser and Curtis [13] subsequently extended these studies to include 12 cases of male hypogonadism and considered that compressed tablets containing 5 mg. each of methyl testosterone were more satisfactory than the propylene glycol solutions.

Salmon and his associates [14] and Joel [15] used androgens sublingually in the management of various gynecologic disorders. Joel described the treatment of 19 such patients, to whom he administered 5 to 30 mg. of methyl testosterone daily. One patient received 900 mg. sublingually in one month and evidenced mild arrhenomimetic effects.

Estrogens.—Miescher and Gasche [16] showed in castrated female rats that estradiol was ten to twenty times more effective sublingually than orally. Numerous observers have reported the clinical effectiveness of various sublingually administered estrogens.[17] Hall [18] and Salmon and Geist [19] showed clinically that α-estradiol in propylene glycol by this route produced typical cornification in the vaginal smear. Salmon and Geist administered daily doses of 0.2 to 0.3 mg. of α-estradiol to 8 patients and at the end of one week showed definite estrogenic effects by vaginal smears and biopsies in all. Hall used a solution containing 0.5 mg. per cubic centimeter in a series of about ninety-eight menopausal types of patients. He considered the sublingual doses about equal to injected doses milligram for milligram.

Endometrial proliferation has been artificially produced in patients by the sublingual administration of α-estradiol. Herrnberger [20] and Giesen [21] obtained these effects with total doses of about 180 mg. Joel,[22] however, using a specially prepared tablet, reported similar effects with total doses of only 60 to 90 mg. of α-estradiol. Herrnberger reported that 450 mg. orally ingested would not produce these results. Joel also reported 27 miscellaneous gynecologic cases treated by sublingual α-estradiol and considered that

6. Grossmann, M., and Sandor, J.: Zur klinischen Pharmakologie des Nitroglycerins, Klin. Wchnschr. **2**: 1833, 1923.
7. Evans, W., and Hoyle, C.: Prevention and Treatment of Individual Attacks of Angina Pectoris, Quart. J. Med. **3**: 105, 1934.
8. Krantz, J. C.; Carr, C. J.; Forman, S. E., and Ellis, F. W.: Alkyl Nitrites, J. Pharmacol. & Exper. Therap. **67**: 191, 1939.
9. Walton, R. P.: Further Studies Dealing with the Sublingual Absorption of Drugs, J. Pharmacol. & Exper. Therap. **57**: 148, 1936.
10. Hinselmann: Die perorale und perlingual Verabreichung von Testosterone, München. med. Wchnschr. **89**: 720, 1942. Miescher, K., and Gasche, P.: Zur lingual Applikation von männlichen Sexualhormon, Schweiz. med. Wchnschr. **72**: 279, 1942. Hurxthal, Lewis M.: Sublingual Use of Testosterone, J. Clin. Endocrinol. **3**: 551, 1943. Spence.[11] Lisser, Escamilla and Curtis.[12] Salmon, Geist, Gaines and Walter.[14] Joel.[15]
11. Spence, A. W.: Sublingual Administration of Methyl Testosterone, Brit. M. J. **1**: 668, 1942.
12. Lisser, Hans; Escamilla, R. F., and Curtis, L. E.: Testosterone Therapy of Male Eunuchoids: III. Sublingual Administration of Testosterone Compounds, J. Clin. Endocrinol. **2**: 351, 1942.
13. Lisser, Hans, and Curtis, L. E.: Testosterone Therapy of Male Eunuchoids: IV. Result from Methyl Testosterone Linguets, J. Clin. Endocrinol. **3**: 389, 1943.
14. Salmon, U. J.; Geist, S. H.; Gaines, J. A., and Walter, R. I.: The Treatment of Abnormal Uterine Bleeding with Androgens, Am. J. Obst. & Gynec. **41**: 991, 1941.
15. Joel, C. A.: Clinical Results Obtained with Sublingual Administration of Methyl Testosterone, J. Clin. Endocrinol. **2**: 116, 1942.
16. Miescher, K., and Gasche, P.: Zur lingual Applikation von weiblichem Sexualhormon: Beitrag zur Therapie mit "Ovocyclin-Linguetten," Schweiz. med. Wchnschr. **72**: 490, 1942.
17. Kaufmann, C.: Kritische Bewertung der Hormontherapie: Häufige Fehler in der Anwendung der weiblichen Keimdrüsenhormone, Deutsche med. Wchnschr. **67**: 1171, 1941. Reifferscheid, W., and Schmidt: Klin. Wchnschr. **20**: 440, 1942. Hall,[18] Salmon and Geist.[19] Herrnberger.[20] Giesen.[21] Joel.[22] Castrodale, Loeffel and MacBryde.[23]
18. Hall, G. J.: Clinical Experiences with Sublingual Administration of Alpha-Estradiol, J. Clin. Endocrinol. **2**: 26, 1942.
19. Salmon, U. J., and Geist, S. H.: Buccal Absorption of Alpha-Estradiol in Propylene Glycol, Proc. Soc. Exper. Biol. & Med. **45**: 766, 1940.
20. Herrnberger, K.: Zur Frage der peroralen Wirksamkeit des Follikelhormons (Oestradiol) und des Corpus-Luteum-Hormones (Progesterone), Zentralbl. f. Gynäk. **65**: 13, 1941.
21. Giesen, W.: Beitrag zur Frage der peroralen Wirksamkeit des Follikelhormons, Deutsche med. Wchnschr. **67**: 547, 1941.
22. Joel, C. A.: Dosage of Female Sex Hormones, Estradiol and Anhydrohydroxyprogesterone by Sublingual Application, J. Clin. Endocrinol. **2**: 639, 1942.

two to three times as much was required by the sublingual route as when estradiol propionate was injected intramuscularly.

Castrodale, Loeffel and MacBryde [23] administered diethylstilbestrol in propylene glycol to 17 women suffering from typical symptoms of estrogen deficiency. A solution containing 20 mg. per cubic centimeter was used and results were judged by relief of symptoms and changes in vaginal smears. All patients were treated for a month or more. Results indicated that the sublingual doses are about equally effective as swallowed doses and half as effective as intramuscular doses.

Anhydrohydroxyprogesterone.—Joel reported that sublingual total doses of 150 mg. of anhydrohydroxyprogesterone produced transformation of the endometrium toward the secretory phase. This he contrasted with oral doses of about 220 to 300 mg. which were required to produce the same effect. The latter oral doses were considered to be five to eight times the injected dose.

Desoxycorticosterone Acetate.—Anderson, Haymaker and Henderson [24] administered desoxycorticosterone acetate sublingually to 6 patients with Addison's disease. They used a propylene glycol solution containing 10 mg. per cubic centimeter and administered 2 to 6 mg. daily in divided doses. All patients were reported in excellent condition after six to eight weeks

Fig. 1.—Stomach contractions in dog. Recorded by balloon inserted through gastrostomy opening. Apomorphine hydrochloride (0.1 mg. per kilogram) administered sublingually. Retching (*R*) in two minutes, vomiting (*V*) in five minutes. Dogs do not usually vomit with ten times this dose by stomach tube.

of such treatment. They considered this method to be quantitatively as effective as the intramuscular or subcutaneous injections of oil solutions of desoxycorticosterone acetate, which had been previously administered to 5 of the 6 patients. They do not consider the oral ingestion of this drug to be satisfactory even when ten times the usual doses are given. Turnoff and Rowntree [25] confirmed the satisfactory management of 2 cases of Addison's disease by this same method.

Similarly, Heni [26] treated 3 cases successfully and considered that the sublingual dose must be one-third greater than the intramuscular dose. Dunlop,[27] working with 7 cases, obtained satisfactory results by application of the drug to the oral mucosa but considered that three to five times as much was required as by the intramuscular route. The use of compressed tablets applied "sublabially" was considered most effective. Wilson [28] used propylene glycol solutions in 4 cases and obtained evidence of absorption but not to a degree which was considered satisfactory.

Anderson and Haymaker [29] subsequently found it advisable to add up to 20 per cent of alcohol to the solution they had been using. They reported then the management of 17 cases of Addison's disease with this improved solution. Thorn and his associates [30] similarly demonstrated the effectiveness of the sublingual route by determinations of sodium chloride excretion. They considered that the sublingual dose is about three to four times that by injection, although Anderson and Haymaker,[29] in reviewing their report, insist that with certain precautions the ratio is lower and certainly not more than two to one.

Vitamins.—The fat soluble vitamins no doubt could be administered by sublingual application, although there is ordinarily no need for administration by this route. The effective administration of some of these products by percutaneous application can be taken to demonstrate a high degree of penetrability, although these conditions have important differences. Vitamin A,[31] vitamin D [32] and vitamin K [33] preparations have been shown recently to be effective by percutaneous application.

Alkaloids.—Apomorphine, although very slightly soluble in fats, is extremely insoluble in water, with the result that its distribution coefficient is relatively high.[5] Its penetration through the oral mucosa of the dog is good, and consistently effective sublingual doses are only twice the subcutaneous doses. There is no possibility that swallowing explains these effects, since approximately ten times as much as the subcutaneous dose is necessary if the drug is given by stomach tube. The high degree of absorption of apomorphine through other mucosae has been described by Macht.[34] When administered to human subjects by sublingual application, doses of 6.5 to 10 mg. produced moderate to intense nausea and depression in six of eight trials.[35] It is evident that this drug can be effectively administered sublingually if doses about twice the subcutaneous dose are used. The circumstances, however, would be exceptional under which the sublingual application of apomorphine could prove practically useful.

Nicotine passes through the oral mucosa with considerable ease and promptness, which is chiefly a point of toxicologic interest. Franke and Thomas [36] have shown that the minimum fatal sublingual dose in unanesthetized dogs is 10 mg. per kilogram, which is only about three times the minimum fatal dose by intravenous injection. The oral use of tobacco products as an indulgence undoubtedly involves some direct absorption of nicotine through the buccal mucosa. Nicotine is something of an exception to the proposed correlation, since its fat-water distribution coefficient

23. Castrodale, D.; Loeffel, E., and MacBryde, C. M.: Sublingual Administration of Diethylstilbestrol: Comparison of Routes in Therapy, J. Clin. Endocrinol. **2**: 569, 1942.

24. Anderson, Evelyn; Haymaker, Webb, and Henderson, Edward: Successful Sublinguinal Therapy in Addison's Disease, J. A. M. A. **115**: 2167 (Dec. 21) 1940.

25. Turnoff, David, and Rowntree, L. G.: Successful Sublingual Therapy in Addison's Disease, J. A. M. A. **116**: 2016 (May 3) 1941.

26. Heni, F.: The Sublingual Administration of Desoxycorticosterone in the Treatment of Addison's Disease, Deutsche med. Wchnschr. **68**: 162, 1942.

27. Dunlop, D. M.: Desoxycorticosterone Acetate in Addison's Disease, Brit. M. J. **1**: 557 (May 8) 1943.

28. Wilson, A.: Sublingual Therapy in Addison's Disease, Lancet **1**: 762, 1942.

29. Anderson, Evelyn, and Haymaker, Webb: Technic of Sublingual Administration of Desoxycorticosterone Acetate in the Treatment of Addison's Disease, Clinics **1**: 476, 1942.

30. Thorn, G. W.; Greif, R. L.; Coutinho, S. O., and Eisenberg, H.: Relative Effectiveness of Several Methods of Administering Desoxycorticosterone Acetate: Addison's Disease, J. Clin. Endocrinol. **1**: 967, 1941.

31. Mandelbaum, Joseph, and Schlessinger, Leo: Absorption of Vitamin A Through Human Skin, Arch. Dermat. & Syph. **46**: 431 (Sept.) 1942. Eller and Wolff.[32] Macht.[34]

32. Eller, J. J., and Wolff, Shirley: Hormones and Vitamins in Cosmetics, J. A. M. A. **114**: 1865 (May 11); 2002 (May 18) 1940.

33. Vollmer, Hermann; Abler, Charles, and Altman, H. S.: Percutaneous Administration of Vitamin K, Am. J. Dis. Child. **64**: 462 (Sept.) 1942.

34. Macht, D. I.: Absorption of Drugs and Poisons Through the Skin and Mucous Membranes, J. A. M. A. **110**: 409 (Feb. 5) 1938.

35. Walton, R. P., and Lacey, C. F.: Absorption of Drugs Through the Oral Mucosa, J. Pharmacol. & Exper. Therap. **54**: 61, 1935.

36. Franke, F. E., and Thomas, J. E.: Minimum Fatal Dose of Nicotine for Unanesthetized Dogs, Proc. Soc. Exper. Biol. & Med. **29**: 1177, 1932.

is low (2.6). It is, however, completely miscible with fat in all proportions, and its behavior may thus be considered more as a modification of the correlation than as a contradiction. Thus, to state the correlation more completely, it could be said that the penetrability of drugs through the oral mucosa is favored by a high fat-water distribution coefficient or an exceptionally high fat solubility.[5] In addition to the unique solubility of nicotine in fats, this alkaloid is unusually alkaline and irritant. The latter feature is possibly an important conditioning factor in its high degree of penetrability.

Cocaine is another drug whose absorption through the buccal mucosa is chiefly a matter of toxicologic interest. Its distribution coefficient is relatively high (32), and in dogs excitement effects can be produced by sublingual doses which are only twice the subcutaneous dose.[35] In human subjects the absorption of cocaine through the more permeable nasal mucosa is well known.

DRUGS WHICH DO NOT PENETRATE THE ORAL MUCOSA IN ANY PRACTICAL DOSAGE

Of the very considerable number of drugs which are nonirritant and which are effective in small doses, most have been claimed at various times to be effective by sublingual application.[1] It may be accepted, however, that if they do not exhibit a high distribution coefficient or a high fat solubility they are not effectively administered in this way, and any effects which may have been obtained in this way are due to small amounts having been swallowed.

Morphine Derivatives.—Morphine, codeine and dilaudid have low distribution coefficients (less than 2) and are very slightly soluble in oil. From observations with trained Thierry fistula dogs it has been demonstrated that they do not pass through the oral mucosa to any significant degree. In dogs, sublingual doses ten or more times greater than the subcutaneous doses were necessary in order to obtain typical effects. (With these three drugs, by sublingual, stomach tube and subcutaneous routes, tracings were obtained, each following a preliminary control period of regular peristaltic waves.[34] I consider the latter type of control more or less obligatory when Thierry fistula tracings are made for the purpose of semiquantitative evaluation.[37] In human subjects sublingual doses were successively increased to 120 mg. with morphine and to 15 mg. for dilaudid. No subjective effects were obtained from these sublingual doses, although these doses were ten or more times greater than trial subcutaneous doses which produced recognizable subjective effects.

According to the correlation of the table it is evident that diacetyl morphine is the only morphine derivative in this group which might reasonably be expected to be effective by this sublingual route. It is a diester and hence more related to typical fats than the other derivatives and, as expected, has a higher distribution coefficient (17). Its sublingual absorption in dogs supports the correlation, and consistent effects were obtained with doses only three to four times greater than the subcutaneous dose (conclusion based on tracings with Thierry fistula dogs).[38] Suggestive but inconsistent effects were obtained in human trials with sublingual doses up to 15 mg. Definite subjective and objective effects (stomach spasm as shown by balloon tracings) were obtained with 1.5 to 4 mg. subcutaneous doses in some of the same subjects. Since this is the only morphine derivative which has even suggestive possibilities of practical administration in this way, further experiments were directed toward methods which might increase penetrability. A number of trials were made in Thierry fistula dogs using 40 per cent alcoholic solutions of the drug. No significant increase in penetrability was noted. Similar solutions in human subjects did not produce definite effects in doses up to 25 mg. Mixtures made up with bile salts did not give consistent or definite effects in doses of 10 mg. to 15 mg. Mixtures made up with 7 parts of propylene glycol and 3 parts of an aqueous solution of 2 to 10 per cent sodium carbonate gave inconsistent and only slightly suggestive subjective effects in doses of 15 mg. With the latter dose mixture, fourteen trials were made in 11 subjects.[9]

The conclusion stands clearly that these opiates cannot be administered sublingually by any of the currently used technics. That member of these four morphine derivatives, diacetyl morphine, which by in vitro and by animal experiments clearly indicated the highest degree of penetrability, was not satisfactorily effective in human subjects with relatively extreme doses, and in special mixtures which in some cases were too irritant for ordinary use.

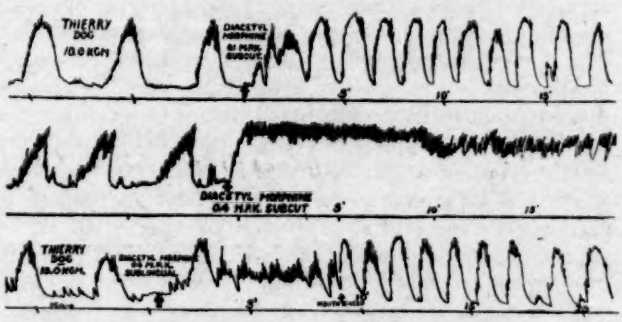

Fig. 2.—Thierry fistula tracings each from same dog: Top, diacetylmorphine hydrochloride (0.1 mg. per kilogram) subcutaneously; moderate stimulation. Middle, ditto with 0.4 mg. per kilogram subcutaneously; pronounced effect. Bottom, ditto with 0.4 mg. per kilogram sublingually; effect comparable to that with 0.1 mg. per kilogram subcutaneously.

Ergot Alkaloids.—Ergonovine has characteristics which make it a good test of the validity of the correlation. By other counts it should be well suited for sublingual administration; it is effective in very small doses (0.2 mg.), it is known to be absorbed exceptionally well after swallowing, its salts are highly water soluble and such concentrated solutions can be administered without irritation. Its distribution coefficient, however, is very low and, in agreement with the correlation, our observations show it to be ineffective by sublingual application.

Pressure tracings made with balloons in uterine fistulas of dogs have shown that large sublingual doses were ineffective under conditions in which one-fifth the same doses subcutaneously produced definite effects. In human male subjects nine trials in 4 persons with doses from 0.5 to 2.5 mg. of ergonovine maleate produced no more than barely recognizable subjective sensations in 1 or 2 instances.[39] This is in contrast to a clinical series with ergonovine intravenously in

37. Walton, R. P., and Lacey, C. F.: A Comparison of the Motor Effects of Morphine, Codeine and Dihydromorphinone Hydrochloride (Dilaudid) on Thierry Fistulae, J. Pharmacol. & Exper. Therap. **54**: 53, 1935.

38. Walton, R. P.: Absorption of Drugs Through the Oral Mucosa, Proc. Soc. Exper. Biol. & Med. **32**: 1486 and 1488, 1935.

39. Walton, R. P.; Smith, J. B., and Cook, F. M.: Absorption of Ergot Alkaloids, J. Pharmacol. & Exper. Therap. **66**: 39, 1939.

104 patients, 50 per cent of whom were nauseated and 18 per cent of whom vomited.[40] Subcutaneous doses of the amount used in our sublingual trials cause intense nausea, tingling in the extremities, cerebral excitation and precordial oppression.

In some of the earlier clinical experiments with ergonovine[41] results were reported which indicated the effectiveness of its sublingual administration and, in fact, it has been an occasional practice to administer it in this way in some of the larger obstetric clinics of this country. I cannot reconcile this practice with our observations and suggest that the clinical results must have been due to swallowing

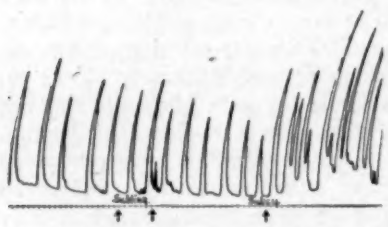

Fig. 3.—Uterine contractions in 15 Kg. dog under pentobarbital light anesthesia. Ergonovine maleate in sublingual dose of 0.4 mg. per kilogram has no effect, while subsequent subutaneous administration of same dose produces definite stimulation.

Ergotamine exhibits an indicated distribution coefficient which puts it in the borderline group deserving a trial by the sublingual method. The need for its repeated administration in the management of some migraine cases makes this technic an attractive one. The limited water solubility of its salts, however, makes it difficult to administer enough to be effective by this route. Kelly[42] concluded from experiments on himself that two tablets of ergotamine sublingually were equal to five or six orally. Von Storch,[43] working with a number of migraine patients, found it necessary to give six to eight times as much by sublingual as by subcutaneous administration. If a sufficiently water soluble salt of ergotamine should be developed, it might possibly be given routinely in this way.

Autonomic Drugs.—With atropine, in vitro and animal observations indicate a low degree of penetrability. Definite effects in human subjects were obtained only after the dose had been increased to a degree which would have been dangerous if the drug was swallowed (12 to 15 mg.). Such effects as are obtained with these larger doses may be attributed to possible swallowing of a small fraction of the drug. It is conceivable that, among the various synthetic and natural products which have pharmacologic similarity to atropine, some may be found which have an adequate degree of penetrability. No systematic study of this sort has been made. Wallgren[44] has reported the effective lingual application of eumydrin in the management of congenital pyloric stenosis. His results were probably due to the drug being swallowed.

Mecholin has been shown to produce typical effects (salivation, defecation, miosis) in dogs by sublingual application but only in doses considerably larger than the subcutaneous dose producing the same effects. Relatively large doses (up to 400 mg.) had no effect when administered sublingually to human subjects.

40. Lennox, W. G.: Ergonovine versus Ergotamine as Terminator of Migraine Headaches, Am. J. M. Sc. **195**: 458, 1938.
41. Adair, F. L.; Davis, M. E.; Kharasch, M. S., and Legault, R. R.: Study of New and Potent Ergot Derivative, Ergotocin, Am. J. Obst. & Gynec. **30**: 466, 1935.
42. Kelly, T. W. G.: Ergotamine Tartrate in Migraine, Lancet **1**: 777, 1937.
43. Von Storch, T. J. C.: Complications Following the Use of Ergotamine Tartrate, J. A. M. A. **111**: 293 (July 23) 1938.
44. Wallgren, A.: Lingual Application of Eumydrin in Treatment of Congenital Pyloric Stenosis, Arch. Dis. Childhood **15**: 103, 1940.

Barbiturates.—The sodium salts of two barbiturates, pentobarbital[35] and 1-methyl-butyl methallyl barbiturate[9] have been shown to produce surgical anesthesia in dogs by sublingual application. These anesthetic effects, involving a total of fifty-five experiments, were obtained more rapidly by sublingual application than by stomach tube administration, and these anesthetic effects were also obtained equally well in dogs with esophageal fistulas. This necessitated the passage of considerable quantities of drug through the oral mucosa. In the case of pentobarbital at least 250 mg. passed directly through the mucosa of a 10 Kg. dog, since this is the minimum dose producing anesthesia by intravenous injection. Despite these demonstrations of the direct passage of impressively large quantities through the oral mucosa, it is not considered practical to administer these drugs by this method. The penetration obtained in dogs was undoubtedly due in a large measure to the irritant action of these alkaline sodium salts. In human trials, sedative effects were obtained only with 250 mg. doses of sodium pentobarbital and this involved an unacceptable degree of mucosal irritation.

Analeptics.—Strychnine and picrotoxin both produced convulsions in dogs when simply applied to the oral mucosa. The picrotoxin was administered in mixtures of alcohol or propylene glycol with water. On the basis of one hundred and three experiments in dogs it has been concluded that the sublingual/subcutaneous ratio of effective doses is four for strychnine and six for picrotoxin.[45] This indicates that dangerously large doses would be needed in order to obtain penetration of effective doses through the oral mucosae of human subjects. Epinephrine by sublingual application in dogs does not produce effects in doses two hundred and fifty times greater than the intravenous dose producing recognizable effects (depression of motor activity of intestinal fistulas). In human subjects, sublingual doses of 3 mg. were without effect although the same subjects showed definite responses to one-tenth that amount by subcutaneous injection.[35] A recent statement[46] that asthmatic infants respond to

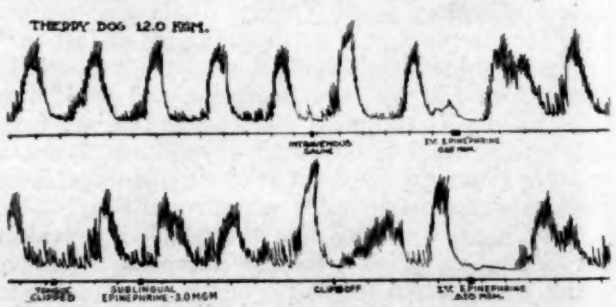

Fig. 4.—Thierry fistula tracing (continuous). Epinephrine in doses of 0.05 mg. and 0.10 mg. intravenously produces brief but definite depression of intestinal activity. Dose of 3.0 mg. sublingually during interval between injections does not produce recognizable depression.

sublingual doses of 1.5 mg. of epinephrine is interesting since it is possible that penetration is more easily obtained in infants. The difference, however, would have to be very great in order to reconcile this statement with the observations that I have made. Ephedrine exhibits more promising solubility characteristics than epinephrine, but a limited number of experiments

45. Walton.[9] Walton and Lacey.[35]
46. Beckman, H.: Treatment in General Practice, Philadelphia, W. B. Saunders Company, 1942, p. 360.

with dogs and with human subjects showed that its degree of penetration was low.

Metrazol and hydrocyanic acid can be shown to produce their typical effects in dogs by sublingual administration, but the degree of penetrability is not striking and no effects were obtained in human subjects with relatively large doses. Kuschel [47] demonstrated perlingual absorption of metrazol in cats. The required doses, however, were of about the same order as my associates and I found in dogs.

Cardiac Glucosides.—Since the cardiac glucosides are effective in very small doses they might be considered suitable for this type of administration, and some writers have claimed this to be the case. The solubility characteristics, however, are clearly unfavorable and a very conclusive study by Eggleston and White [48] has demonstrated the lack of penetrability of amorphous strophanthin. These observers applied relatively large doses of an alcohol solution of strophanthin to the oral mucosa of 18 patients with cardiac decompensation. No effects were obtained, although subsequent administration of digitalis in the usual way was followed by definite and typical effects. Digitoxin has somewhat better promise based on solubility characteristics, but a few preliminary trials of its alcoholic solution in dogs indicated to us that it would not be effective sublingually in any practical dosage.

Insulin is protein in character and hence would not be expected to exhibit favorable oil solubility. In dogs, no effects were obtained by sublingual application of doses twenty times greater than those which produced pronounced hypoglycemia by subcutaneous injection.[35] McCullagh and Lewis [49] also found that the sublingual technic was ineffective in dogs. They further demonstrated the ineffectiveness of the sublingual technic in 4 human subjects, including 1 who was diabetic. Their observations satisfactorily refute the several unimpressive reports which have claimed the successful sublingual administration of insulin.[50]

COMMENT

These observations show that the fat-water distribution coefficient of drugs is a dominant factor in determining their penetrability through the oral mucosa.

With the drugs so far studied, coefficients of approximately 20 to 30 fall in the borderline range of effective administration by sublingual application. A number of the common drugs with lower coefficients have been shown to be ineffective by sublingual application. Some of the organic nitrates and the steroid hormones have been effectively administered sublingually, and their coefficients fall in the range of 40 to 2,000. This may be considered an optimum range. It is probable that drugs with coefficients higher than this range may not be effective, in which case the explanation would be that adequate concentrations could not be obtained in the aqueous salivary fluids of the mouth.

In the table the solubilities are those of the free alkaloids or bases, while the measurements of penetrability were made with soluble salts of the alkaloids. Since the correlation set up in this way is clearly a valid one, it may be concluded that the salt dissociates and allows the free base to act in the mouth as it does in the in vitro oil-water system. Apparently, in the mouth, the same conditions of competition of solvents prevails and, in this case, the predominant competition is that between the aqueous salivary fluids and the fat in the protoplasm of the cells. The solubilities of the alkaloidal salts seem to have no significance in this problem beyond the need for enough water solubility that a reasonably concentrated water solution can be administered.

Experimentally, it was found that there was no special penetrability to be obtained by using the free alkaloid rather than the soluble salts. To use the free alkaloid, solutions in water and alcohol or in water and propylene glycol were employed. The further admixture with alkalis and with surface active agents such as bile salts provided no significant improvement in penetrability. Some have suggested that the different areas of the buccal mucosa should be studied to determine differences in penetrability. It is doubtful, however, that this will lead to any improved technic, since we found, at least, no advantage in perlingual over sublingual application.

The most feasible method for improving the sublingual penetrability of a given drug seems to be the preparation of chemical derivatives with more favorable solubility characteristics. Nitrate and acetate esters, for instance, will exhibit a significantly improved distribution coefficient, and in some cases the typical activity of the original drug can be retained or even intensified. This procedure would be most applicable in the case of those drugs which are on the borderline of effective penetrability. It is suggested here that in the synthetic preparation of new drugs and in the chemical variations of the standard drugs this particular feature might be advantageously added to other objectives.

SUMMARY AND CONCLUSIONS

The sublingual administration of drugs is a simple and, at times, an advantageous technic for those few drugs with an adequate degree of penetrability. The majority of drugs, however, do not penetrate the oral mucosa in significant amounts, and it is unsound practice to rely on this technic with any drug whose effectiveness by this route has not been conclusively demonstrated.

A simple in vitro correlation, depending on solubility characteristics, largely determines the ability of drugs to penetrate the oral mucosa. As new drugs are developed, it is suggested that those which give promise according to this criterion be subjected to adequate trial by absorption experiments in animals and human subjects.

47. Kuschel, H.: Ueber die Wirkung von Cardiazol bei enteraler und perlingualer Zufuhr, Arch. f. exper. Path. u. Pharmakol. **193**: 330, 1939.

48. Eggleston, Cary, and White, T. J.: Absorption of Strophanthin Following Sublingual and Perlingual Administration, J. A. M. A. **89**: 583 (Aug. 20) 1927.

49. McCullagh, E. P., and Lewis, L. A.: Comparison of Effectiveness of Various Methods of Administration of Insulin, J. Clin. Endocrinol. **2**: 435, 1942.

50. Fantus.[1] McCullagh and Lewis.[49]

Orthopedics.—The word orthopaedic was compounded in 1741 by the Parisian physician Nicolas André from the Greek roots orthos, meaning straight, and pais, meaning child. He used it in a treatise on skeletal deformities which he attributed to muscle imbalances during childhood. The word has survived, while André's theory has long since been discarded. Today the word has a quite different meaning. Orthopedics is the branch of medicine that deals with diseases and injuries of bones and joints, including deformities, both congenital and acquired, fractures and dislocations. The orthopedist is a surgeon rather than a physician prescribing corrective exercises as André had intended.—Haagensen, C. D., and Lloyd, Wyndham E. B.: A Hundred Years of Medicine, New York, Sheridan House, Inc., 1943.

COMBINED PENICILLIN AND HEPARIN THERAPY OF SUBACUTE BACTERIAL ENDOCARDITIS

REPORT OF SEVEN CONSECUTIVE SUCCESSFULLY TREATED PATIENTS

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PHILIP ROSENBLATT, M.D.
HARRY J. GREENE, M.D.
AND
MORTIMER RUSSELL
BROOKLYN

In experimental thrombotic bacterial endocarditis [1] the disappearance of vegetations requires the use of a suitable chemotherapeutic agent and an anticoagulant. The clinical application of this principle in subacute bacterial endocarditis has been disappointing; the technics of therapy are cumbersome, the toxicity of treatment has been excessive even for an otherwise fatal disease and the successes have been few and irregular.[2] Early efforts made with sulfonamides, with or without heparin, have been mostly abandoned. The introduction of penicillin proved equally disappointing; the commission appointed by the National Research Council has already reported unfavorably and discouraged the use of the at present inadequate supply of the drug for the treatment of viridans endocarditis.[3]

The present report, which deals with the apparently successful treatment of 7 consecutive examples of subacute bacterial endocarditis, employs variations on previous technics. Penicillin [4] is used to replace sulfonamide in the conjoint chemotherapeutic-anticoagulant attack and prolonged heparinization [5] has been accomplished primarily by a special method devised for the subcutaneous deposition of the drug.[6]

CLINICAL MATERIAL

Six of the 7 patients [7] suffered from a bacterial endocarditis that was engrafted on a chronic rheumatic valvulitis, and the other had a congenital cardiac defect. In 5 of the 7 patients the etiologic organism was a Streptococcus viridans; the sixth patient had a hemolytic streptococcus and the seventh a pneumococcus type 27.

TECHNIC OF TREATMENT

Probatory sensitivity tests were performed in each instance. The bacteria were inhibited within the dilution of 0.007 to 0.01 Florey units per cubic centimeter of penicillin. The daily dosage of penicillin varied from 40,000 to 200,000 Florey units and the total ranged from 867,920 to 7,890,340 Florey units. The heparin dosage approximated 300 mg. every second day when given subcutaneously and 200 mg. daily when incorporated in the venoclysis.

Heparinization was checked by the Lee-White modification of Howell's method for determining blood coagulation time.[8] A reading of thirty to sixty minutes was regarded as satisfactory evidence of anticoagulant activity. The present technic has minimal toxicity; it is simple of accomplishment and the immediate results, at least, appear to be uniformly successful.

CASE REVIEWS

CASE 1.—*Subacute bacterial endocarditis, pneumococcus type 27, ten weeks; congenital cardiac anomaly (septal defect); post-therapy, five months, clinically well and blood stream sterile.*

I. Z., a girl aged 7½, was admitted to the Jewish Hospital of Brooklyn on June 3, 1943 because of chills and fever of ten weeks' duration. At the age of 9 months a loud precordial murmur was found on routine physical examination. Three years before admission she had a bout of unexplained fever lasting eight weeks. She remained perfectly well thereafter until ten weeks before admission, when she developed an

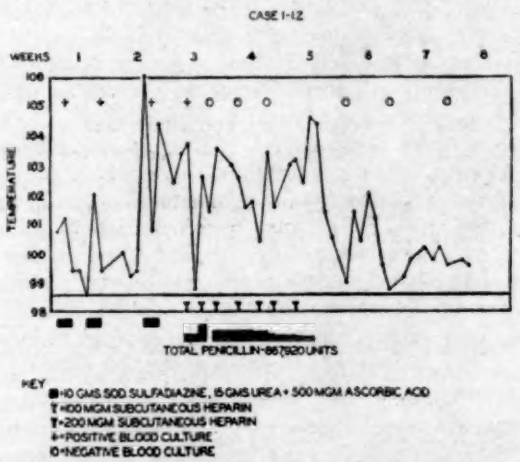
CASE 1-12
WEEKS 1 2 3 4 5 6 7 8
TEMPERATURE
TOTAL PENICILLIN-867,920 UNITS
KEY
H-10 GMS. SOD. SULFADIAZINE, 15 GMS. UREA + 500 MGM. ASCORBIC ACID
T-100 MGM. SUBCUTANEOUS HEPARIN
T-200 MGM. SUBCUTANEOUS HEPARIN
+-POSITIVE BLOOD CULTURE
O-NEGATIVE BLOOD CULTURE

Chart 1.—Temperature and dosage in case 1.

earache and low grade fever lasting three days. Two days after this subsided she suddenly developed a high temperature, which was spiking in character and continuous to the time of admission. She also had intermittent chills. Four weeks prior to hospitalization she developed lobar consolidation (infarct?) which persisted ten days. She lost 13 pounds (6 Kg.) in the last ten days.

On admission the temperature was 103.8 F., pulse 132 and respirations 32. Blood pressure was 110/90. The heart was slightly enlarged to the left, and a loud systolic murmur was heard all over the precordium. The spleen was just palpable on inspiration. The clinical impression was subacute bacterial endocarditis engrafted on a congenital cardiac anomaly (septal defect). Blood culture, taken on June 4, revealed pneumococcus, type 27. Massive sulfonamide therapy [9] was begun June 4, consisting of 10 Gm. of sodium sulfadiazine, 15 Gm. of urea and 500 mg. of ascorbic acid dissolved in 650 cc. of distilled water administered by venoclysis. Six such courses were given over a period of twelve days without improvement. Blood cultures taken on June 9, 14 and 18 remained positive for pneumococcus type 27. Sulfadiazine blood levels ranged up to 78.8 mg. per hundred cubic centimeters total and 74.2 mg. per hundred cubic centimeters free. In view of the lack of response to this therapy, a combined penicillin-heparin regimen was initiated June 19. The patient received subcutaneous

From the Department of Medicine and the Department of Laboratories, Jewish Hospital.

1. Loewe, Leo; Rosenblatt, Philip, and Lederer, Max: Experimental Thrombotic Bacterial (Streptococcus Viridans) Endocarditis in the Rabbit, Am. J. Path., to be published.

2. Kelson, S. R., and White, P. D.: A New Method of Treatment of Subacute Bacterial Endocarditis, J. A. M. A. **113:** 1700-1702 (Nov. 4) 1939. McLean, Jay; Meyer, B. B. M., and Griffith, J. M.: Heparin in Subacute Bacterial Endocarditis, ibid. **117:** 1870-1875 (Nov. 29) 1941.

3. Keefer, C. S.; Blake, F. G.; Marshall, B. K., Jr.; Lockwood, J. S., and Wood, W. B., Jr.: Penicillin in the Treatment of Infections, J. A. M. A. **122:** 1217-1224 (Aug. 28) 1943.

4. The entire supply of penicillin for this project was obtained from the Charles Pfizer Company of Brooklyn. Mr. J. L. Smith and Dr. W. J. Smith of that organization showed keen interest and close cooperation.

5. Roche-Organon, Inc., Nutley, N. J., supplied all the heparin (Liquaemin) for both the subcutaneous and the intravenous administration of the drug. Drs. Ralph D. Shaner and Leo Pirk of that company were especially cooperative.

6. Loewe, Leo; Rosenblatt, Philip, and Lederer, Max: A New Method of Administering Heparin, Proc. Soc. Exper. Biol. & Med. **50:** 53-55, 1942. Loewe, Leo, and Rosenblatt, Philip: A New Practical Method for Subcutaneous Administration of Heparin, Am. J. M. Sc., to be published.

7. This series of cases was recruited mostly from the medical services of Drs. A. L. Louria, M. A. Rabinowitz, J. Rosenthal and E. L. Shlevin. We wish to thank them for the privilege of utilizing this clinical material.

8. Gradwohl, R. B. H.: Clinical Laboratory Methods, ed. 3, St. Louis, C. V. Mosby Company, 1943, p. 514.

9. Dick, C. F.: Subacute Bacterial Endocarditis, J. A. M. A. **120:** 24-25 (Sept. 5) 1942.

deposits of 100 or 200 mg. of heparin approximately every other day. During the first twenty-four hours, 42,400 Florey units of penicillin dissolved in 2,000 cc. of 5 per cent dextrose in saline solution was given intravenously by slow drip. On June 20 and 21 42,400 and 129,600 units respectively were administered by vein. The venoclysis was then discontinued because the patient became extremely uncooperative. Blood culture on June 21 showed no growth. Although her general condition was good the temperature persisted and it was decided to resume penicillin therapy by the intramuscular route. On June 24 penicillin was again started with 64,800 Florey units in fractional intramuscular dosage. Combined penicillin-heparin therapy was then continued without interruption until July 5, a total of 867,920 units of penicillin and 1,200 mg. heparin being given over a period of sixteen days. On June 27 her temperature, although still elevated, was on a lower level. On June 29 she showed evidence of extensive infarction of the lower two thirds of the right lung. Blood cultures taken on June 28, July 6 and July 19 were sterile. On July 22 her general condition was good, a slight elevation of temperature to about 100 F. being ascribed to a cold which she developed. She was discharged July 23 for further convalescence at home. Since then she has been seen periodically, her temperature remaining normal and the blood cultures negative. She is now attending school regularly.

CASE 2.—*Subacute bacterial endocarditis, Streptococcus viridans, ten months; chronic rheumatic cardiovalvular disease, aortic; no response to massive sulfonamide and three courses of penicillin-heparin therapy; fourth course of penicillin-heparin therapy successfully sterilized blood stream; clinically much improved.*

S. R., a man aged 34, was referred to the Jewish Hospital of Brooklyn by Dr. I. L. Epstein on Feb. 7, 1943 complaining of fever and cough of six weeks' duration. At the age of 13 he had spent two months in bed because of "an inflamed heart chamber" and joint pains. At the time a diagnosis was made of rheumatic heart disease. The patient was well until about six weeks before admission, when he developed a cough followed by persistent low grade fever, which continued despite oral sulfadiazine. There were no physical signs apart from a systolic murmur at the mitral area and a diastolic murmur at the aortic area. The admission diagnosis of subacute bacterial endocarditis was confirmed by blood cultures taken February 10 and 12, both of which were positive for Streptococcus viridans. On February 22 he was given 18 Gm. of sodium sulfapyridine by intravenous drip, which failed to sterilize the blood stream. Supplemental fever therapy through the medium of intravenous triple typhoid vaccine was instituted March 8. Sulfadiazine levels were maintained around 20 mg. per hundred cubic centimeters, and fever treatments were

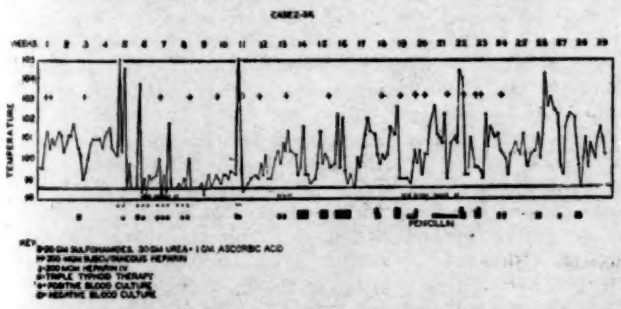

Chart 2.—First twenty-eight weeks in case 2.

given approximately every other day. After three such pyrexia reactions heparin was added to the program. However, on March 23 and April 5 and 14 Streptococcus viridans was recovered from the blood stream despite adequate fever therapy and intensive sulfadiazine medication, which had attained blood levels up to 40 mg. per hundred cubic centimeters. Sulfathiazole-fever therapy was similarly ineffectual. On May 4 massive cyclic intravenous chemotherapy was started with sodium sulfadiazine, the individual dose approaching 40 Gm. Urea and ascorbic acid were frequently employed as adjuvants. Blood levels reached as high as 123 mg. per hundred cubic centimeters total and 109 mg. per hundred cubic centimeters of free sulfadiazine. Despite nineteen such intensive courses of treatment over a period of six weeks the blood cultures on May 22 and on June 9 and 16 were richly positive. On June 19 a three day course of penicillin-heparin therapy was initiated, which was obviously inadequate. When additional penicillin supplies were available on June 27 the patient was started on a nine day schedule comprising approximately 40,000 units of penicillin daily by vein and 300 mg. of heparin deposited every other day under the skin. When the blood cultures remained positive, massive sulfonamide therapy was again projected. From July 7 to August 17 he received variously sodium sulfadiazine, sodium sulfapyridine, sodium sulfathiazole and sodium sulfamerazine without sterilization of the blood stream. On August 27 a more elaborate course of penicillin-heparin therapy was begun with 200,000 units of penicillin daily by venoclysis and 300 mg. of heparin subcutaneously approximately every other day. This was continued for fourteen days, after which the blood cultures remained negative until October 4, when organisms reappeared. The temperature, which had been flat for weeks (charts 2 and 3) now showed some irregularity, and on October 9 a fourth course of penicillin-heparin was initiated. The daily dosage plan consisted of 200,000 units of penicillin and 200 mg. of heparin given together by continuous venoclysis for a period of twenty-four days. The occasional sharp febrile rises due to heparin receded promptly following temporary withdrawal of the drug. Since completion of the therapeutic program the temperature has remained normal with the exception of a slight fever due to a complicating nasopharyngitis. The blood cultures since October 13 have been sterile; the sedimentation rate receded from a high of 130 mm. per hour on June 14 to 10 mm. per hour on November 26 and the patient is in excellent condition. In all, this patient received four courses of combined therapy totaling 7,890,340 Florey units of penicillin and 7,100 mg. of heparin.

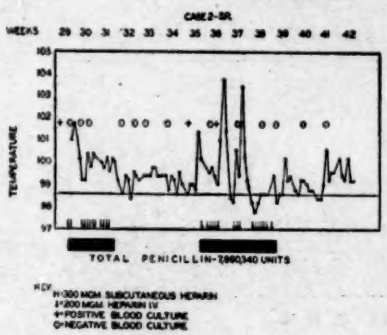

Chart 3.—Remainder of course in case 2.

CASE 3.—*Subacute bacterial endocarditis, Streptococcus viridans, eight months; chronic rheumatic cardiovalvular disease, mitral and aortic; three cycles of penicillin-heparin therapy; no clinical or laboratory evidence of bacterial activity for four months.*

L. O., a woman aged 24, unmarried, was admitted to the Jewish Hospital of Brooklyn on April 16, 1943. Her first attack of rheumatic fever, of which she had three or four, occurred at the age of 7. Her present illness began in December 1942 with complaints of chills, fever, malaise, pain in the hip and occasional crops of petechiae on the arms. She did not improve with home care and finally entered the Mount Sinai Hospital of Cleveland, where the diagnosis of subacute bacterial endocarditis due to Streptococcus viridans was established. This diagnosis was substantiated, clinically and bacteriologically, at the Jewish Hospital. A rough systolic thrill over the aortic area and systolic and diastolic murmurs, loudest at the base, indicated a predominant aortic valve lesion. There were several petechiae on the fingers. The spleen was not palpable. The patient's condition did not change materially following intensive oral and parenteral administration of sulfadiazine, which achieved blood levels of 41.2 mg. per hundred cubic centimeters total and 37.0 mg. per hundred cubic centimeters free. Fresh petechiae appeared occasionally, and the temperature swung irregularly up to 103 F. From May 17 until July 31, when the penicillin-heparin program was started, she received fifteen courses of sulfadiazine, each treatment comprising 10 to 20 Gm. of sodium sulfadiazine, 15 to 30 Gm.

of urea and 0.5 to 1 Gm. of ascorbic acid given together by venoclysis. The complete lack of response, clinical and bacteriologic, to this massive chemotherapy justified the adoption of the penicillin-heparin regimen. The initial course of the latter lasted for nine days and consisted of 60,000 to 100,000 units of penicillin daily by continuous venoclysis and 100 or 200 mg. of heparin subcutaneously approximately every other

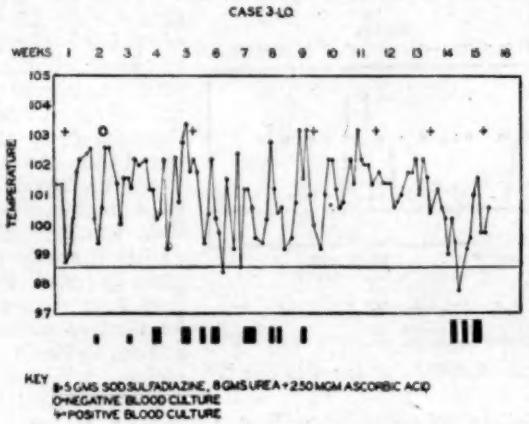

Chart 4.—First fifteen weeks in case 3.

day. The irregular temperature, up to 101 F. during therapy, was attributable in part to the heparin. Repeated blood cultures taken on August 9, 12, 16, 20 and 24 were all sterile. When the patient continued subfebrile, however, additional treatment was projected. The dosage schedule of penicillin was 100,000 units daily for fourteen days. Collateral heparinization was started with 300 mg. and continued with 200 mg. subcutaneously every other day. On September 1 there was a definite febrile reaction which was due to a grossly contaminated penicillin solution. Although blood cultures taken August 28 and September 3 and 12 were reported sterile, the temperature, which had been normal, became slightly elevated to 100 F. A third course of penicillin and heparin seemed indicated and was begun on September 20, the penicillin dosage being increased to 200,000 units daily intravenously for twenty-eight consecutive days. Satisfactory heparinization was maintained with 200 mg. of heparin incorporated daily with the penicillin except when eliminated temporarily because of an inordinate febrile response or excessive anticoagulant activity.

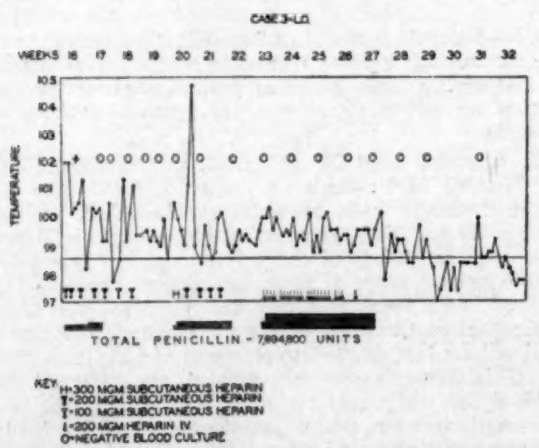

Chart 5.—Sixteenth to thirty-second weeks in case 3.

Dental consultation[10] on October 5 revealed the presence of advanced foci of infection and on October 13 several teeth were removed which were definitely diseased. Gauze packing saturated with penicillin solution, 5,000 units per cubic centimeter, was applied topically. Streptococcus viridans was recovered from the dental sockets.

10. The oral surgery on these patients was performed by Dr. M. D. Levin, attending oral surgeon of the Jewish Hospital.

The patient withstood the operative procedure well and all therapy was discontinued on October 19, five days after operation. Blood cultures taken on September 20 and 27, October 4, 12, 13, 18 and 25 and November 1 were all sterile and the temperature continued normal. The patient's weight has increased from a low of 71 pounds (32 Kg.) on July 10 to 92 pounds (42 Kg.). The patient received a total of 7,694,800 Florey units of penicillin in three cycles, 700,000, 1,400,000 and 5,594,800 units respectively. The overall total of heparin employed was 6,700 mg.

CASE 4.—*Subacute bacterial endocarditis, Streptococcus viridans, three weeks; chronic rheumatic cardiovalvular disease, mitral and aortic; post-therapy cerebral embolization with complete recovery; no clinical or laboratory evidence of bacterial activity, three months.*

J. N., a man aged 31, was admitted to the Jewish Hospital of Brooklyn on Aug. 17, 1943 because of unexplained fever of three weeks' duration. He had rheumatic fever at the age of 6 and about ten to fifteen years ago noticed dyspnea on exertion, which has persisted to date. Three weeks prior to admission the patient developed pain, redness and tenderness of the toes of his right foot, followed in a week by fever and headache. Two days prior to hospitalization he experienced pain in the left upper quadrant. He suffered a weight loss of 5 pounds (2.3 Kg.).

On entrance his temperature was 98.2 F., pulse 120, respirations 24 and blood pressure 140/0. There were petechiae

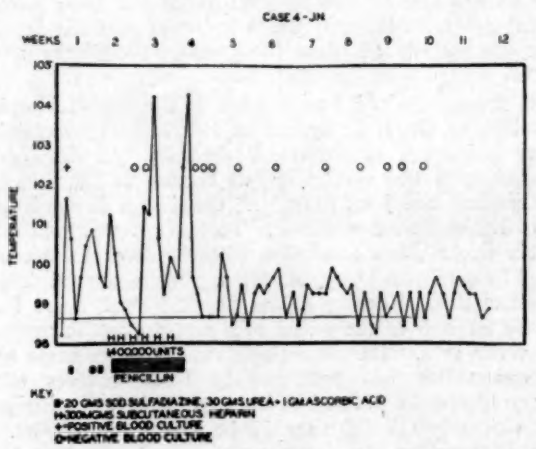

Chart 6.—Course in case 4.

in the buccal mucosa. The heart was enlarged to the anterior axillary line. The first mitral sound was loud and snapping followed by a blowing systolic murmur; the second sound was blurred. There was a to and fro murmur at the aortic area transmitted to the neck, which obliterated the basal sounds. The spleen was palpable 3 fingerbreadths below the costal margin. The clinical impression was rheumatic heart disease with aortic stenosis and insufficiency, mitral insufficiency and subacute bacterial endocarditis with splenic infarction. Blood culture on the day of admission yielded 100 to 200 colonies of Streptococcus viridans per plate. On three separate occasions, August 19, 23 and 24, the patient was given intravenously by the gravity method 20 Gm. of sodium sulfadiazine, 30 Gm. of urea and 1 Gm. of ascorbic acid dissolved in 1,500 cc. of distilled water, all of which was wholly ineffectual. Furthermore, he reacted badly to this form of therapy, so that a penicillin-heparin regimen was instituted on August 26. The latter consisted of the daily administration of 100,000 Florey units of penicillin by continuous intravenous drip in conjunction with 300 mg. of heparin subcutaneously on alternate days. The temperature, which was irregularly elevated during the two weeks course of treatment, reached normal two days following its suspension. On September 14 the patient developed a complete left hemiplegia, which cleared entirely within four days. In view of the persistently negative blood cultures it was assumed that the embolization was abacterial. There were no further untoward events until his discharge on November 3, the temperature remained normal, the spleno-

megaly disappeared, the sedimentation rate fell from 95 mm. per hour on September 13 to 14 mm. per hour on October 18, and blood cultures done at practically weekly intervals up to and including October 25 were all sterile. His general condition at discharge was most satisfactory. His weight, which on admission was 145 pounds (66 Kg.), increased to 159 pounds (72 Kg.) on October 31.

As a precautionary measure a dental survey was done on October 19. Several foci of infection were found and the offending teeth removed. Ten thousand units of penicillin dissolved in 2 cc. of saline solution was injected intramuscularly every three hours on the day before, the day of and the day after the oral surgery. The operative site was packed with gauze dipped in 5 cc. of saline solution containing 20,000 units of penicillin. There was no febrile reaction, and the blood culture taken one hour after the dental extraction was sterile. Streptococcus viridans was recovered from cultures of the teeth.

In all, the patient received 1,400,000 Florey units of penicillin over a period of fourteen days, during which time he was also given 1,800 mg. of heparin.

CASE 5.—*Subacute bacterial endocarditis, Streptococcus viridans, four months; chronic rheumatic cardiovalvular disease, mitral; no response to intensive sulfonamide and initial course of penicillin-heparin therapy; second twenty-eight day cycle of penicillin-heparin therapy effected sterilization of blood stream and progressive clinical improvement, which has persisted two and a half months; possible penicillin-heparin sensitization.*

C. M., a woman aged 22, married, was admitted to the Jewish Hospital of Brooklyn Aug. 17, 1943 because of "bacteria in the blood stream" of three months' duration. She had rheumatic fever at the ages of 6 and 9½ years, after which she was known to have a heart murmur. She was well until May 4, 1943, when she had the "grip," from which she recovered except for weakness and lethargy. About a week later she experienced sudden severe sacral and right lumbar pain, which was followed by ten days of hematuria. She subsequently had left upper quadrant pain which lasted one week. In the seventh week of her illness she was delivered of a 7 month infant under caudal anesthesia. Chills and fever recurred frequently, and blood cultures continued positive despite intensive sulfonamide therapy.

On admission the skin presented a pale lemon yellow pallor with a slight malar flush. There were no petechiae. The spleen was palpable 2 fingerbreadths below the costal margin. The heart was enlarged, and there was a rumbling to and

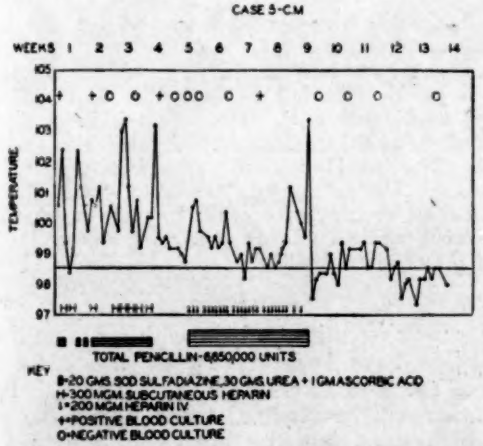
CASE 5-CM
WEEKS 1 2 3 4 5 6 7 8 9 10 11 12 13 14
TEMPERATURE
TOTAL PENICILLIN-6,650,000 UNITS
KEY
B-20 GMS. SOD SULFADIAZINE, 30 GMS UREA + 1 GM ASCORBIC ACID
H-300 MGM. SUBCUTANEOUS HEPARIN
I-200 MGM HEPARIN IV
+-POSITIVE BLOOD CULTURE
O-NEGATIVE BLOOD CULTURE

Chart 7.—Course in case 5.

fro murmur at the apex. There was a diastolic murmur at Erb's point. Blood culture taken on the day of admission revealed 250 to 350 colonies of Streptococcus viridans per plate. Chemotherapy was given by vein on August 8, 19, 23 and 24 in the form of sodium sulfadiazine 20 Gm., urea 30 Gm. and ascorbic acid 1 Gm. dissolved in 1,000 cc. of distilled water in combination with heparin. The latter was administered subcutaneously in 300 mg. doses. All this proved unavailing, as the elevated temperature persisted and the blood culture on August 25 was positive. Accordingly penicillin-heparin therapy was started on August 26 with 100,000 units of the former daily by continuous venoclysis for fourteen days and 300 mg. of the latter subcutaneously approximately every other day. The temperature dropped with the onset of this regimen, ranging between 99.2 and 101 F. with the exception of an

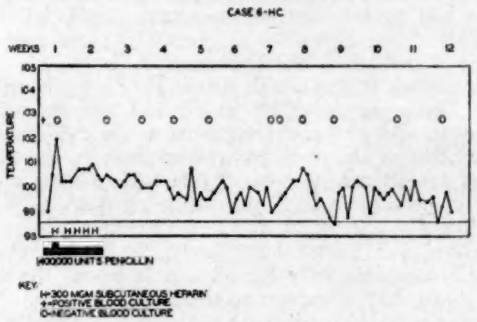

Chart 8.—Course in case 6.

abrupt rise to 104 F. due to air borne contaminants in the penicillin solution. The rise in temperature on the day following suspension of the therapy was attributed to the heparin deposited the preceding day. In view of the continued irregular temperature despite the sterile blood cultures on September 12 and 17 following the positive one of September 10, additional penicillin-heparin therapy was projected. The daily dosage schedule begun on September 18 and continued uninterruptedly for twenty-eight days consisted of 200,000 Florey units of penicillin and 200 mg. of heparin given in combination by continuous intravenous drip. During the therapy the general condition of the patient was good in spite of irregular persistent elevation of temperature. A blood culture taken on October 4 was reported positive for Enterococcus haemolyticus, for which no valid explanation was forthcoming because the temperature was normal and the patient appeared exceptionally well. On the twentieth day of therapy, October 12, the temperature suddenly rose to 104 F. An occasional rale was heard at the left base and, on the premise that bronchopneumonia was developing, sulfadiazine 1.5 Gm. was administered every four hours. Blood culture taken this day was sterile, however, and with no further progress in the physical signs the temperature continued spiking daily for four days, attaining a level of 105 F. on the twenty-seventh day of therapy. Penicillin-heparin sensitization was suspected and all treatment stopped, following which the temperature promptly fell to normal within twenty-four hours and remained so thereafter. Blood cultures taken on October 18 and 25 and November 15 were sterile and the sedimentation rate dropped from 67 mm. per hour on September 13 to 12 mm. per hour on November 15. On October 27 two devitalized teeth were removed with the customary prophylactic penicillin treatment (see case 4). The patient was allowed out of bed on November 3 and discharged in excellent condition on November 17. Her weight increased from 105 pounds (48 Kg.) on September 12 to 120 pounds (54 Kg.) on November 14.

This patient received two courses of penicillin-heparin therapy, one of fourteen days' and the other of twenty-eight days' duration; the penicillin requirements were 1,400,000 and 5,250,000 Florey units respectively. The total of heparin employed was 7,600 mg.

CASE 6.—*Subacute bacterial endocarditis, Streptococcus haemolyticus, three weeks; chronic rheumatic cardiovalvular disease, aortic; widespread, almost lethal, embolizations; prompt, dramatic response to penicillin-heparin therapy; progressive clinical improvement and negative blood cultures, three months.*

H. C., a woman aged 52, unmarried, was admitted to the Jewish Hospital of Brooklyn on Aug. 28, 1943 for penicillin-heparin therapy. She was transferred for this purpose from the St. Elizabeth Hospital of New York with a diagnosis of streptococcus (hemolytic) bacterial endocarditis engrafted on a chronic rheumatic cardiovalvular defect. She entered the St. Elizabeth Hospital on August 7 because of pain in the

chest and upper abdomen, sudden weakness, general malaise and chills and fever of one day's duration. She was acutely ill and had two petechiae in the right conjunctival sac. The harsh systolic murmur over the aortic area and the diminished second aortic sound were indicative of an aortic stenotic lesion. The blood pressure was 104/60. Streptococcus haemolyticus was isolated from the throat on August 9 and from the blood on August 12. Intensive oral and parenteral sulfonamide therapy had no influence on the course of the infection, the clinical condition becoming progressively more critical with repeated embolizations and hyperpyrexia.

On admission to the Jewish Hospital she was virtually moribund. There was complete motor and sensory aphasia in addition to splinter hemorrhages under the nail beds of the toes and fingers and small ecchymotic areas on the volar surfaces of the fingers. Gallop rhythm was present, with heart sounds of poor quality. Blood culture on August 28 revealed 130 colonies of Streptococcus haemolyticus per plate. Penicillin therapy was started immediately, the dosage plan being 100,000 Florey units daily for thirteen days with the exception of the third day, when she received 200,000 units. Heparin, which was withheld pending the outcome of the recent cerebral embolization, was subsequently administered by the subcutaneous method, 300 mg. every other day on five occasions for a total of 1,500 mg. The sterile blood culture on August 31 and the reduction of temperature mirrored the dramatic clinical improvement. Toward the end of the second week of therapy the patient showed signs of pulmonary edema and, in view of the absence of bacterial activity, it was felt that the therapy could safely be interrupted. The patient was digitalized and fluid intake limited. During the succeeding four weeks her condition progressively improved, all embolic phenomena disappeared, the temperature ranged between 99 and 100 F., and blood cultures taken approximately at weekly intervals were sterile.

Occasional complaints of toothache prompted a dental survey at this time, which disclosed several badly diseased teeth. A two stage removal of these foci of infection was done under the customary precautionary penicillin regimen (see case 4).

The sedimentation rate dropped from 30 mm. per hour on September 2 to 14 mm. per hour on October 25 and routine periodic blood cultures were sterile. The clinical improvement continued satisfactorily, the temperature, which hovered between 99.4 and 100.2 F. for several weeks finally became normal, and the patient was discharged in good condition on November 17.

CASE 7.—*Subacute bacterial endocarditis. Streptococcus viridans, ten weeks; chronic rheumatic cardiovalvular disease, mitral; repeated, cyclic, massive sulfonamide therapy unavailing; satisfactory response to a two weeks course of penicillin-heparin therapy; progressive clinical improvement and complete absence of bacterial activity over two months; post-therapy, prophylactic tonsillectomy.*

I. S., a man aged 35, was admitted to the Jewish Hospital of Brooklyn on Aug. 8, 1943 with complaints of chills and fever of ten weeks' duration. On the tenth day of his illness he had sudden, sharp, severe left upper quadrant pain, which receded after twenty-four hours. He entered another hospital, where a provisional diagnosis of typhoid was made. He was told that he had a large spleen but that all laboratory tests, including blood cultures, had been negative. He remained in the hospital for three weeks, the last ten days of which were afebrile.

Two weeks before admission to the Jewish Hospital the patient began to have chills and fever with daily spiking of temperature. His past history revealed an episode of "rheumatism for two months" at the age of 5. On entrance the temperature was 100.6 F., pulse 120, respirations 30 and blood pressure 120/80. The skin was pale with slight café au lait tint. There was a systolic blowing murmur at the apex, and the spleen was palpable 2 fingerbreadths below the costal margin. Blood culture done the day of admission revealed 40 colonies of Streptococcus viridans per cubic centimeter and confirmed the clinical diagnosis of subacute bacterial endocarditis. On August 11 combined sulfonamide-heparin therapy was started. The chemotherapy was of the massive, cyclic variety and consisted of 20 to 40 Gm. of sodium sulfadiazine, 30 to 60 Gm. of Zeitz filtered urea and 1 to 2 Gm. of ascorbic acid given on two successive days at approximately weekly intervals. Heparinization was accomplished with 300 mg. of the drug given subcutaneously approximately every other day. After the second cycle of therapy the blood culture taken during a post-transfusional febrile reaction yielded 7 to 12 colonies of Streptococcus haemolyticus per plate. The fifth and sixth cycles of chemotherapy (60 Gm. of sodium sulfadiazine) were started on September 10 and 17 without effect, as the blood cultures taken on September 14, 15 and 20 were all variously positive for Streptococcus viridans. It was evident at this point that the organisms were sulfonamide resistant and that massive chemotherapy had been futile despite levels up to 68.7 mg. per hundred cubic centimeters total and 59.0 mg. per hundred cubic centimeters free sulfadiazine.

On September 26 a fourteen day course of penicillin-heparin was started, the daily dosage consisting of about 200,000 Florey units of penicillin and 200 mg. of heparin dissolved in 1,500 cc. of isotonic solution of sodium chloride and given by continuous intravenous drip. The total penicillin administered was 3,203,200 Florey units, and the overall total of heparin was 6,700 mg. The temperature, which was irregularly lower during therapy, promptly dropped to normal following cessation of therapy on October 10 and has remained so to date.

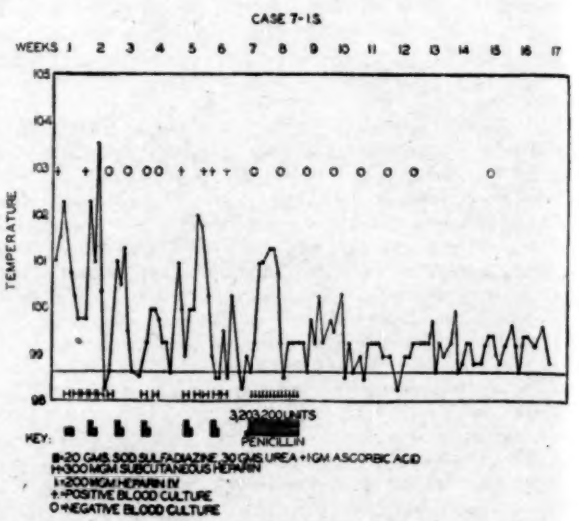

Chart 9.—Course in case 7.

The sedimentation rate receded from 100 mm. per hour on August 9 to 24 mm. per hour on November 15, and repeated blood cultures have been sterile. The weight has increased from 143 pounds (65 Kg.) on September 12 to 153 pounds (69 Kg.) on November 21. The patient is in excellent condition and is awaiting discharge following the removal on November 22 of frankly infected tonsils, from which pus could be extruded. The prophylactic tonsillectomy was done under the customary, precautionary penicillin regimen (see case 4). Streptococcus viridans was the predominant organism in cultures of the removed tonsils.

SUMMARY

1. Seven consecutive patients with subacute bacterial endocarditis have been treated by a method which combines the uses of penicillin and heparin. Further observation will be required to determine the permanence of results, but the immediate effects suggest uniformly successful sterilization of the blood and relief of clinical manifestations.

2. Penicillin has been given in requisite dosage by the method of the continuous intravenous drip. One patient, however, also received the drug intramuscularly.

3. Heparin has been deposited subcutaneously in most instances but was occasionally given in the intravenous infusion.

4. There has been no significant toxicity as the direct result of therapy. In point of fact, treatment was well tolerated and each of the patients exhibited striking well-being during and after the active period of treatment.

5. In a few of the patients the efficacy of the therapy may have been enhanced by the preliminary use of sulfonamide.

6. Post-therapy management included the removal of possible foci in the teeth and nasopharynx. These surgical procedures were accompanied by additional prophylactic chemotherapy with penicillin.

COMBINED HEPARIN AND CHEMOTHERAPY IN SUBACUTE BACTERIAL ENDOCARDITIS

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CHICAGO
AND
CAPTAIN STEPHEN R. ELEK
MEDICAL CORPS, ARMY OF THE UNITED STATES

It has been shown previously by experimental work from this department [1] that the cause for the persistence of infection of Streptococcus viridans in a valvular vegetation is due to (*a*) the relative avascularity of the valve leaflets, (*b*) the presence of a fibrin-platelet barrier which interferes with the entrance of white blood cells and hinders the diffusion into the lesion of bacteriostatic and bactericidal agents present in the blood stream and (*c*) the fibrin constantly being added, which offers an excellent medium for the growth of these bacteria. On this basis it was thought that the prevention of further deposition of fibrin might be achieved with heparin, thereby permitting the vegetation to heal. The first case of subacute bacterial endocarditis treated with heparin was reported from this department.[2] Simultaneously Kelson and White [3] reported their experience with 7 patients treated with heparin combined with sulfonamide therapy.

Since then combined heparin and sulfonamide therapy has been tried by many. Sixty-seven patients so managed have been tabulated and thoughtfully reviewed by McLean, Meyer and Griffith.[4] Since then several additional cases have been reported. The latest tabulation [5] lists 109 such cases. In this report we are placing on record 4 additional cases treated by us since publication of our original report. In 2 of these, intensive arsenotherapy was combined with the heparin and sulfonamide therapy because of the favorable report of Osgood.[6]

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Drs. W. W. Hamburger (deceased), Sidney Strauss and Morris Lev gave valuable service as clinical consultants.
From the Cardiovascular Department, Michael Reese Hospital. The department is supported in part by a grant from the Michael Reese Research Foundation.

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REPORT OF CASES

CASE 1.—F. M., a white woman aged 34, who was admitted to another hospital during the first week in January 1941 because of a three weeks history of fever, malaise, chills and joint pains which developed several weeks after the patient had two teeth extracted in the preceding November, then developed headache, dyspnea on slight exertion, orthopnea and ankle edema. She had had rheumatic polyarthritis at the age of 9, with evidence of heart involvement sufficiently severe to compel her to restrict her activities during her adolescence and in her twenties. She took digitalis on several occasions.

At the previous hospital the diagnosis of subacute bacterial endocarditis was based on the presence of rheumatic heart disease, petechiae, fever, leukocytosis and seven positive blood cultures showing Streptococcus viridans. While there she received sulfathiazole orally for about two months and heparin for one day (but this did not prolong her clotting time). The chemotherapy had to be discontinued because of persistent nausea. No clinical improvement was observed to result from the chemotherapy. On admission to Michael Reese Hospital on April 4, 1941 she appeared well nourished and well developed, with a café au lait complexion. The heart was enlarged, and murmurs characteristic of mitral stenosis and insufficiency and of aortic insufficiency were found. She had a Corrigan pulse, her blood pressure was 134/52 mm. of mercury and she had frequent premature systoles. The spleen was not palpable, and she had Janeway nodes on the soles of her feet. Eyeground examination showed blurred optic fundi and retinal petechiae.

The temperature was 102 F. by rectum, the pulse rate 116 per minute and the respiratory rate 22 per minute. The total white cell count was 15,600 with a shift to the left. The red blood cell count was 3,200,000 with 60 per cent hemoglobin. Two blood cultures were positive for Streptococcus viridans. There were 4 to 5 red blood cells per high power field in the urine sediment. The electrocardiogram revealed a sinus tachycardia, left ventricular preponderance and auricular premature systoles and was definitely abnormal. In the teleoroentgenogram, the heart was bilaterally enlarged and the left auricle was dilated. During the patient's stay in the hospital petechiae, some white centered, appeared in the conjunctiva, on the hand and on the soft palate. Osler nodes of the fingers also were found.

The patient was started on sulfapyridine on April 14 but developed nausea on the same day and accordingly it was stopped. She was given heparin [7] for seven days, from April 16 to 23. An average of 30 to 40 cc. per day was given intravenously dissolved in 2 liters of isotonic solution of sodium chloride. The total amount of heparin used was 262.5 cc. The clotting time was prolonged from 4¾ minutes to from 12 to 25 minutes with a maximum of 36 minutes. The heparin was stopped on April 23 because the patient developed signs of cerebral hemorrhage. The patient died the next day. During heparinization her temperature fluctuated between 101 and 102 F. and she showed no clinical improvement.

The salient findings at necropsy were a subacute bacterial endocarditis on the aortic and mitral valves (superimposed on an old rheumatic valvulitis) extending to the left auricle, an acute myocarditis with small infarcts and a recent subarachnoid hemorrhage with hemorrhage into the left temporal lobe.

CASE 2.—B. S., a white woman, aged 27, admitted to Michael Reese Hospital on Dec. 4, 1940, complained of pain in the lower left leg. This first occurred in October and was followed three weeks later by a second similar episode lasting a week and accompanied by a chill. A local physician detected a double murmur over the apex and fever and informed the patient that she had acute rheumatic fever. She had had palpitation and orthopnea in the past one and one-half years and occasional ankle edema since 1936 and had lost 16 pounds (7.3 Kg.) preceding admission. There was no "rheumatic" history. In the past she had had measles, and, three years before admission, scarlet fever without any known sequelae. In 1938 she was diagnosed as having a toxic diffuse goiter and improved on strong solution of iodine (Lugol's solution).

7. Liquaemin, supplied for this and the other patients by Roche-Organon, Inc.

On admission the patient was pale, thin and ill looking with a temperature of 101.6 F. and she had a suspicious petechia on the right buccal mucosa. The heart was definitely enlarged, the apical impulse being close to the anterior axillary line in the sixth intercostal space. The heart sounds were of good quality. There was a fine systolic thrill at the apex, an apical systolic murmur and a questionable apical diastolic murmur. The heart rate was 100 per minute and the blood pressure 90/68 mm. of mercury. The spleen was palpable one finger's breadth below the costal margin and not tender. There were suspicious petechiae on the left leg, and early clubbing of the fingers was present.

The red blood cell count was 3,800,000 with 70 per cent hemoglobin, and the white blood cell count was 7,600. The urine was normal. Four blood cultures were positive for alpha hemolytic streptococcus; however, two subsequent blood cultures also revealed Streptococcus viridans. A teleoroentgenogram showed the heart to be within average normal limits, and the left auricle was not dilated.

During the patient's course, petechiae in the eyegrounds and hard palate developed. Many Osler and Janeway nodes also appeared.

She was started on oral sulfanilamide on Dec. 24, 1940 and the blood level was maintained between 8 and 11 mg. per hundred cubic centimeters. This was stopped on Feb. 5, 1941 because of a toxic dermatitis. Sulfathiazole (15 grains [1 Gm.] alternating with 22½ grains [1.45 Gm.] every four hours orally) was then substituted and continued to April 4, but the maximum blood level attained was only 3.5 mg. per hundred cubic centimeters. During the five weeks on sulfanilamide therapy and the two months on sulfathiazole the blood cultures remained positive. On January 14 the patient was given heparin about 30 cc. per day intravenously on the average. This was administered dissolved in 2 liters of isotonic dextrose-sodium chloride solution. Heparin was used without interruption continuously day and night for six weeks. The normal clotting time of six to seven minutes was kept prolonged at 20 to 25 minutes on the average with peaks up to 2 to 2½ hours. The total heparin used over the six weeks was 1,260 cc.

After two weeks of heparinization she was given massive arsenotherapy intravenously for four days. On the first day she received 120 mg. of mapharsen dissolved in 2 liters of isotonic solution of sodium chloride and on the other three days 240 mg. per day similarly diluted. A total of 840 mg. of mapharsen was given. On the fifth day the arsenotherapy was discontinued because of a toxic hepatitis from which the patient recovered. Heparin administration was continued during the arsenotherapy. The average temperature prior to arsenic therapy was about 100.6 F., but during it the temperature remained below 99 F. and at no other time in the patient's course did it approach normal levels.

This patient tolerated the protracted course of heparin very well but there was no evidence that it or the chemotherapy led to improvement clinically or had any crucial influence on her illness. Her course after therapy was stopped was progressively downhill. Crops of petechiae appeared in April; paroxysmal auricular fibrillation occurred in May associated with right hemiparesis which improved. She died on June 19 after seven months of hospitalization. Unfortunately permission could not be secured for a necropsy.

CASE 3.—E. G., a white woman aged 25, admitted to Michael Reese Hospital on Aug. 7, 1941, complained chiefly of paralysis of the right side of the body (without unconsciousness), which developed suddenly during a meal a day before admission. Two weeks prior to this she had had transient episodes of loss of speech and a retraction of the left corner of her mouth; during these episodes she had felt drowsy. She also complained of feeling weak and feverish and of pains and "red spots" at the tips of her fingers over the preceding eight weeks. She had lost 25 pounds (11 Kg.) in this same period. At the age of 9 she had chorea and since then had known about her rheumatic heart affliction. In 1940 she successfully bore a child and had an appendectomy.

On admission the patient was thin, anemic and acutely ill in appearance, her temperature was 100.4 F. and her pulse rate 110 beats per minute. The heart was slightly enlarged and the murmurs of mitral insufficiency and stenosis were present, as well as a presystolic apical thrill. Her blood pressure was 120/80 mm. of mercury. The spleen was palpable one finger's breadth below the costal margin but was not tender. There were neurologic signs of previous cerebral embolism, but no paralysis or paresis was found.

The red blood cell count was 4,000,000, with 80 per cent hemoglobin. The white blood cell count was 11,000, with a shift to the left. The urine was normal. The stool contained occult blood. The electrocardiogram was normal. The teleoroentgenogram revealed the configuration expected with mitral stenosis and insufficiency. Five blood cultures were positive for Streptococcus viridans.

The patient received sulfapyridine by mouth from August 14 to 22, the average blood level attained being 9.1 mg. per hundred cubic centimeters. This had to be discontinued because of severe nausea and vomiting. Sulfathiazole was later substituted for twenty-one days (September 5 to 26) and the average blood level was maintained at 2.5 to 4.0 mg. per hundred cubic centimeters.

Heparin was started September 9 and stopped September 17. The quantity used per day varied from 20 to 60 cc. intravenously, the average being 30 cc. This was administered dissolved in 2 liters of isotonic solution of sodium chloride. The blood clotting time was prolonged from a normal of 7 minutes to from 12 to 36 minutes, the average being about 25 minutes. Heparin was discontinued because of the suspicion of cerebral hemorrhage manifested by numbness and difficulty of movement of the left arm and leg. However, three days after stoppage of heparin administration sensation and motion of the affected extremities had returned. The blood cultures remained positive during heparinization.

In November the patient received oral sulfadiazine for twenty-six days (the blood level ranged from 5.9 to 13.9 mg. per hundred cubic centimeters) and an arsenical preparation, Solarsen, 1 cc. per day intravenously for seven days. On November 26 she was given a total of 96 mg. of mapharsen by vein dissolved in 2 liters of isotonic solution of sodium chloride, but this was discontinued because of toxic symptoms. During all this therapy there was no evidence of clinical improvement. On December 1 the patient left the hospital against advice and returned nineteen days later in a state of disorientation with another recent hemiplegia. She died on December 30, five months after her first admission.

Necropsy revealed an old rheumatic endocarditis of the mitral valve with a superimposed ulcerating and vegetative subacute bacterial endocarditis with extension to the auricular endocardium. There were embolic manifestations in the skin, spleen, kidney, brain, coronary vessels and gastrointestinal tract. Microscopically the mitral valve showed granulation tissue, fibrin and bacteria engrafted on a fibrotic valve. The immediate cause of death was an extensive bronchopneumonia.

CASE 4.—G. G., a white girl aged 16 years, was admitted to Michael Reese Hospital on May 31, 1941 because of a feeling of weakness, night sweats and a fever of twenty-four days' duration. She also had had mild palpitation and dyspnea after excitement on moderate exercise for the previous six months. She had had rheumatic fever and rheumatic heart involvement at the age of 7 with three exacerbations.

On physical examination the patient appeared pale, thin and cyanotic. There was a systolic thrill in the carotid arteries. The cardiac apex was in the fifth intercostal space at the anterior axillary line. There was a systolic thrill over the aortic area. The murmurs of mitral and aortic insufficiency and of mitral stenosis were present. The pulse was of the Corrigan type, the blood pressure 110/0 mm. of mercury, and a pistol shot murmur was audible over the femoral arteries. The splenic edge could be palpated at the costal margin but was not tender. Early clubbing of the fingers was present.

The temperature was 100.4 F. The heart rate was 86 beats per minute. The red blood cell count was 3,640,000, with 65 per cent hemoglobin. The white blood cell count was 12,500. The urine was negative. The sedimentation rate was 33 mm. per hour. The electrocardiogram was definitely abnormal. The teleoroentgenogram revealed an enlarged heart with the configuration expected with mitral and aortic valve involvement;

the left auricle was dilated. Three blood cultures were positive for Streptococcus viridans.

Sulfathiazole was given from June 14 to July 1 in doses of 15 grains (1 Gm.) every four hours. Sulfapyridine was begun on July 12 and continued until the 17th, 15 grains being given by rectum every four hours dissolved in 50 cc. of water. The blood level on the 16th was 1.7 mg. per hundred cubic centimeters. Between July 22 and 25 the drug was administered in doses of 2 to 5 Gm. intravenously. Nausea and vomiting accompanied each period of sulfonamide administration.

Heparin was given between July 22 and 26; 15 to 25 cc. was given intravenously per day, the total being 105 cc. The heparin was administered dissolved in 2 liters of isotonic solution of sodium chloride. Heparin prolonged the clotting time from 4 minutes to from 11 to 57 minutes, the average being 26 minutes. All therapy ceased on the 26th, when the patient left the hospital against advice and track was lost of her. The therapy appeared to have had no beneficial effect clinically, the fever persisting and the blood cultures remaining positive.

COMMENT

All 4 patients were young women suffering from Streptococcus viridans endocarditis of varying duration before therapy was started. No benefit appeared to have been derived from the therapy given in any of these cases aside from the drop in temperature to normal levels in case 2 during the four days of massive arsenotherapy with mapharsen. Our experience that massive arsenotherapy may temporarily relieve the fever is similar to that reported by Druckman [8] in a patient who received a total of 3.6 Gm. of neoarsphenamine over four days. However, this was heroic therapy and had to be stopped in both of our cases because a toxic hepatitis developed. Furthermore, the drop in temperature was not seen in the other case (case 4) in which we employed arsenotherapy. The sulfonamides not only were not beneficial in our cases but also had to be stopped because of toxic symptoms on several occasions in all our cases except when the blood levels were too low. The addition of heparin given for five, seven and nine days in 3 of our cases and for six weeks in case 2 did not lead to clinical improvement in any of these cases. In fact, in case 1 it resulted in a fatal cerebral hemorrhage, and it may have been responsible for a nonfatal milder episode of a similar character in case 3.

Case 2 represents the longest period of continuous heparinization recorded in the literature and, while no benefits were obtained clinically, no harm resulted. The possibility that this prolonged heparin treatment may have favored at least partial healing of the vegetations and contributed to prolonging the patient's life could not be determined, since necropsy examination was not permitted.

Our original idea,[1] and the same suggestion was also made by McLean and his associates,[4] was that the efficacy of heparin could be best studied by administering it alone, as the blood in this disease is known to have a high antibody titer, the problem being one of sterilizing the bacterial vegetations rather than sterilizing the blood stream. In our case [1] and in the 2 cases reported by Leach and his co-workers [9] heparin alone was ineffective. Other similar reports have appeared.[10]

Combined therapy was tried in the present study as it doubtless was by others in order to seek out a combination, simple or complex, which would act on the vegetative lesion and lead to statistically significant clinical recoveries. Recently assays of the literature on the therapy of subacute bacterial endocarditis have been assembled [11] which at first sight tend to suggest that sulfonamide therapy, especially when combined with heparin or hyperthermia, has led to a somewhat greater percentage recovery than occurs spontaneously or with nonspecific therapy. Thus, in a summary of the literature it was reported by Smith, Sauls and Stone [11] that of 634 untreated or nonspecifically treated patients 1 per cent recovered, while the rate of recovery was 6 per cent in 198 patients treated with sulfonamides, 11.5 per cent in 43 patients treated with sulfonamides and heparin and 18 per cent in 46 patients treated with sulfonamides and physical hyperthermia or intravenous typhoid. Later, Lichtman [5] assembled a larger series from the literature and noted 1 per cent recoveries in 2,956 untreated or nonspecifically treated cases, as against 4 per cent recoveries in 489 cases treated with sulfonamides, 6.5 per cent in 109 cases treated with sulfonamides and heparin and 10 per cent in 106 cases treated with sulfonamides plus physical hyperthermia or intravenous typhoid. These apparently favorable records, however, are no more than suggestive, since the series are small and may not be statistically significant. It may be significant that the percentage of recoveries in the later report is lower than in the earlier one on a smaller series. Furthermore, it is obvious that negative results are less apt to be reported than positive ones. It is also easy to confuse a long spontaneous remission which occurs in this disease with recovery attributable to the therapy used. The possibility also exists that, in some of the cases reported in the literature as subacute bacterial endocarditis, Streptococcus viridans was simply the organism causing a septicemia without having led to subacute bacterial endocarditis. Such a circumstance has been reported.[12] A final judgment as to which, if any, of these plans of therapy is efficacious must therefore await future analysis, and it is proper when utilizing such therapy to consider it still in the experimental stage.

If the use of sulfonamide therapy, either alone or combined with heparin, is based on the hope that the agent may penetrate into the vegetation and there check the continued growth of the organism, thereby permitting the vegetation to heal, this healing effect should be demonstrable on postmortem examination. While accelerated healing has been reported in a few treated cases post mortem,[13] in most of them,[14] including the 2 of our present series in which necropsies were done, there is little effect in the valves which could be ascribed to specific therapy rather than to the usual tendency to healing typical of this disease. As Leach and his co-workers [9] state, "Postmortem examination in several cases revealed little effect on the vegetation from either the chemotherapy or the heparin. . . . It was the rule to find the vegetations swarming with organisms in spite of high antemortem blood levels of sulfonamide." Kelson [9] alone states that an unusual degree of healing occurs.

8. Druckman, J. S.: Case of Subacute Bacterial Endocarditis with Apparent Cure, J. A. M. A. **117**: 101 (July 12) 1941.
9. Leach, C. E.; Faulkner, J. M.; Duncan, C. N.; McGinn, Sylvester; Porter, R. R., and White, P. D.: Chemotherapy and Heparin in Subacute Bacterial Endocarditis, J. A. M. A. **117**: 1345 (Oct. 18) 1941; (comment by S. R. Kelson, p. 1349).
10. Fletcher, C. M.: Lancet **1**: 444, 1941. Witts, L. J.: Brit. M. J. **1**: 484, 1940. Dockeray, G. C., and Kawerau, E., ibid. **2**: 703, 1940.
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13. Kelson and White.[9] McLean, Meyer and Griffith.[4]
14. Friedman, Hamburger and Katz.[2] McLean, Meyer and Griffith.[4] Leach, Faulkner, Duncan, McGinn, Porter and White.[9] Fletcher.[10] Witts.[10]

One risk in heparin therapy is the high incidence of bleeding. Of the 67 cases tabulated from the literature by McLean and his associates [4] which came to necropsy 11 showed evidence of hemorrhage, usually cerebral, in 9 of which death occurred. Renal hemorrhage has also been reported. Two of our 4 cases, as well as the first case previously reported by us,[1] also showed clinical and/or necropsy evidence of cerebral hemorrhage. Of 22 patients treated with heparin and sulfonamides, 8 died of cerebral hemorrhage during the time heparin was given. Several other authors [15] have commented on this harmful sequel to administering heparin in this disease. Only Kelson [9] appears to have been fortunate in avoiding the hazards of heparin, since he states that cerebral bleeding occurred in none of his cases. There are in addition a number of difficulties in the control and management of patients during heparinization. Thus our patient receiving heparin for six weeks required constant care and attention in order to be sure of needle placement and to keep the clotting time within set limits.

It is the consensus, to which we add our own experience, that the disadvantages of heparin, used alone or in conjunction with chemotherapy, in the treatment of subacute bacterial endocarditis heavily outweigh its advantages. Friedman,[16] who participated in the development of the idea of the use of heparin in this department, subsequently concluded that the further use of heparin should be abandoned in subacute bacteria endocarditis. This view has been voiced by others.[17] After surveying the reports in the literature and our own further experience, we take this opportunity to go on record as concurring in this opinion.

The therapeutic value of arsenotherapy in subacute bacterial endocarditis has recently been advanced by Osgood,[6] who reported 14 per cent apparent recoveries in 70 cases. Lippmann [18] has reported a case with apparent recovery following the use of sulfonamide combined with arsenotherapy (Solarsen). It was these reports that stimulated us to try out the effects of arsenotherapy in combination with heparin and sulfonamides. Our experience in 2 cases were negative, so that we feel that arsenical therapy also is still in the experimental stage. If used in intensive doses its administration must be carefully watched because of the hazard of toxic reactions.

SUMMARY

In 4 cases of combined heparin and chemotherapy, either sulfonamides or sulfonamides and intensive arsenotherapy in the treatment of subacute bacterial endocarditis due to Streptococcus viridans, the results were entirely negative, no evidence of clinical recovery being seen. In 2 of the 4 cases evidence of cerebral hemorrhage during heparin administration was found, making a total of 3 out of 5 cases studied by us.

In 1 of our cases it was possible to administer fairly large quantities of heparin continuously intravenously for six weeks without ill effects. This is the longest period of such administration on record.

In view of this experience and that of others reported in the literature, it is concluded that the further use of heparin in subacute bacterial endocarditis should be abandoned.

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CHEMOTHERAPY IN OPHTHALMOLOGY

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DETROIT

Medical science in the past few years has developed chemical compounds high in bacteriostatic effect and low in local irritant or general harmful reaction. The sulfonamides are widely used in this capacity, and other compounds made from bacillary or mold extracts offer high therapeutic promise. The rapidly expanding use of chemotherapy travels with more knowledge of how these agents work and why they fail. Selection of the substance used becomes more important as physicians learn under clinical conditions the rates of absorption and elimination, the solubility and effective concentrations, the toxicity and side reactions—in short, the specificity of each compound. When several agents are equally effective in meeting a clinical problem, low toxity and freedom from sensitization reactions or late harmful effects should govern selection. Rapid and known specific effects may outweigh in value the factor of low toxicity. From the comparative safety of low dosage some are led to employ the sulfonamides nonspecifically. This is not good practice in general because there are usually enough directives for specificity. Also there are possibilities of establishing early sensitivity, and late unknown reactions may follow tampering with immunity processes.

Toxic side effects are not uncommon with the widely used sulfonamides. They relate chiefly to the hemopoietic system and the urinary tract. The ocular field may show edema and dermatitis of the eyelid, conjunctivitis, clouding of the media and orbital edema, and the second nerve may show reaction. The skin of the eyelids and face may present an appearance of a dermatitis from external sources, or vesiculation, or deep edema and cellulitis or both—sometimes not unlike erysipelas. In some instances effective concentrations of a sulfonamide may be maintained and sensitivity corrected by switching to another compound. In other instances the sensitivity seems to be related to the sulfonamide ring; it then becomes necessary to employ less related substances, as the extracts of molds or bacteria. Established effective methods of therapy need not be discarded in favor of something new. With the right to prescribe the medicament should go the responsibility of continued study of the patient. The ambulatory patient should use sulfonamides only with enforceable restrictions and checks. The daily excretion of urine should be 1,500 cc. or more. With extra fluid intake and added sodium bicarbonate, urinary complications are reduced. When the rare complication anuria develops, catheterization and flushing out of the ureter should follow stoppage of the drug. Differential blood counts are necessary. "Blood levels at least every two days" is a good rule.

The effective dosages and concentrations are variable with the same drug in different infections and patients. To be more fully worked out are combinations of the sulfonamides with other substances—with urea to increase solubility and concentration, with pus and paraaminobenzoic acid in excess to reduce inhibitors, with zinc compounds to augment the effect and permit lowered concentrations, with vasoconstrictor to produce less capillary congestion and local absorption. Drug fastness is an important problem for solution. Much

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remains to be learned about enlarging the scope of these substances by methods common and unusual in pharmacologic research.

SPECIFIC SUGGESTIONS

Inclusion Blennorrhea.—Sulfathiazole is used. The oral dosage is one-third grain (0.022 Gm.) per pound daily in divided doses. This dosage is discontinued after the fourth to seventh day. Local treatment consists of antiseptic washes and the use of 5 per cent sulfathiazole ointment at night.

Gonorrheal Ophthalmia or Gonorrheal Conjunctivitis.—These conditions are effectively treated by oral doses of sulfapyridine, sulfathiazole or sulfanilamide. For an adult the initial oral dose is 3 to 4 Gm.; subsequently 1 Gm. is given every four hours. For a child the dosage is one-third grain (0.022 Gm.) per pound of body weight in divided doses daily; the initial and second doses may be larger to hasten the effect. Local treatment is in order with an ice compress for much edema (occasionally canthotomy), antiseptic irrigations, an ointment containing a sulfonamide compound, atropine if indicated and a conjunctival flap for ulceration and imminent perforation. The powdered drug is used locally with success by some. The use of sulfonamides should be continued until smears are negative for two days.

Hemolytic Staphylococcus Conjunctivitis.—The general treatment consists in the administration of staphylococcus toxoid, the local treatment in the application of a zinc ointment containing sulfathiazole 3.0 per cent and an ointment containing sulfadiazine or sulfathiazole 5.0 per cent twice daily. The conjunctiva should be washed with an antiseptic solution four to six times a day.

Pneumococcic Conjunctivitis.—Tyrothricin (except Friedländer's type) 30 mg. per hundred cubic centimeters is dropped freely into the eyes four to six times daily. For pneumokeratitis and ulcer the same dosage of tyrothricin is used with oral administration of sulfapyridine or sulfadiazine, 2 to 4 Gm., initial dose, followed by 1 Gm. every four hours around the clock. Locally one may use atropine, the cautery and, if indicated, paracentesis and delimiting keratectomy. Foreign protein and typhoid-paratyphoid vaccine have proved value.

Traumatic Injury.—The eye and its parts have a rich blood supply, usually favorable to repair. Foreign matter is removed, and minimal débridement is done. Free local application of a sulfonamide compound or of a preparation of Penicillium when available lessens the possibility of infection and permits more complete early repair. General chemotherapy is necessary for severe ocular lacerations and penetrating wounds of the globe, especially if infection is suspected.

Epidemic Keratoconjunctivitis—Shipyard Fever.—The most favorable results to date have followed local use of tyrothricin 30 mg. per hundred cubic centimeters four to six times daily. Few favorable results have followed the use of zinc ointment containing sulfathiazole 3.0 per cent and other sulfonamide compounds in combination with other drugs. Convalescent serum has not been consistently useful.

Specific Keratitis and Ulcer Due to Bacillus Pyocyaneus.—This requires early treatment (a matter of hours) with sulfapyridine or sulfadiazine; the initial dose is 4 to 5 Gm.; it is followed in one hour by 2 Gm., and thereafter by 1 Gm. every four hours around the clock. The treatment is continued for ten to twenty-one days, the dosage being regulated by blood levels and the clinical course.

Dendritic Keratitis.—Local and oral use of the sulfonamides has not been of much value. Local application of tyrothricin 30 mg. per hundred cubic centimeters with repeated pasteurization by cautery (daily or on alternating days) has led to the most rapid cure.

Blepharitis.—Blepharitis and that form of punctate keratitis associated with chronic conjunctivitis (usually caused by a staphylococcus) are sometimes cured by using sulfadiazine or sulfathiazole ointment three to six times a day. Tyrothricin is helpful (20 mg. per hundred cubic centimeters). The compound neosynephrine sulfathiazolate 3.0 per cent has relieved some obstinate cases.

Orbital Abscess.—Sulfadiazine, sulfapyridine or sulfathiazole is used. The initial oral dose for adults is 2 to 5 Gm., which is followed by 1 Gm. every four hours around the clock. For children the doses are reduced proportionately. Other measures, such as the use of hot wet dressings and drainage, must be considered.

Thrombosis of the Cavernous Sinus.—Hope of cure is offered by a high dosage of sulfadiazine. A rather high blood level should be maintained for three to six weeks. Treatment must be prolonged to prevent relapses.

Uveitis.—The eye with acute uveitis is helped in some cases by the oral use of sulfonamide drugs. Indiscriminate use of these drugs is to be avoided. Sulfadiazine and sulfapyridine have proved about equally effective. When the source of the uveitis is related to the gastrointestinal tract, sulfadiazine and sulfapyridine offer help. The key to successful treatment is to attack the causative agents. In a moderate degree of iritis recovery is sometimes hastened by the use of sulfonamide compounds. Choroiditis is least affected by such treatment. Sympathetic uveitis or ophthalmia so far has been unevenly affected either by high dosage for short periods or low dosage over long intervals. This ocular catastrophe justifies continued clinical investigation to determine the value of its treatment by chemotherapeutic agents.

Trachoma.—The oral dosage of sulfanilamide is 2 Gm. and then 1 Gm. every four to eight hours over a period of a week or ten days. It seems definite that secondary infections are reduced and that the majority of physicians using this drug have noted definite improvement from the disease, especially from corneal involvement.

Postoperative Infections.—Infection following intraocular surgical work usually manifests itself on the second or third day. Continued pain after the initial surgical reaction should have subsided is suspicious, and the eye should be inspected. One should not wait for the usual forty-eight or thirty-six hour interval. An infective process may be stopped by the use of sulfadiazine or sulfapyridine. The oral dosage is 4 to 6 Gm., initial dose, followed by 2 Gm. at the second and the third hour and thereafter by 1 Gm. every four hours around the clock. Continued treatment is usually indicated up to ten to twenty-one days, depending on the severity and the results obtained.

Late Infection After Trephining, Enophthalmitis.—This process may be stopped by the use of sulfapyridine or sulfadiazine. The initial oral dose is 4 to 6 Gm.;

at the second and the fourth hour 2 Gm. is given and thereafter 1 Gm. every four hours around the clock. A cyclitic cataract may develop in this profound inflammation, and secondary glaucoma may develop associated with the lens swelling, requiring removal of the eye if other treatments fail.

Low Grade Dacryocystitis.—Strictures may be prevented and inflammatory processes resolved in some cases by irrigating through the lacrimal sac with tyrothricin 30 mg. per hundred cubic centimeters, every three to seven days. Some eyes are helped by the use of finely divided sodium sulfathiazole used as an emulsion. Treatment must continue over a period of months.

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ABSTRACT OF DISCUSSION

DR. ALAN C. WOODS, Baltimore: I agree with Dr. Heath as to the preparations to be taken in the administration of these drugs. Patients treated with these agents should be admitted to the hospital, and only in exceptional instances, and then with the restrictions outlined by Dr. Heath, should these drugs be administered to ambulatory patients. As concerns the "specific suggestions" offered by Dr. Heath in gonorrheal ophthalmia, traumatic cases, orbital abscesses, trachoma, postoperative infection and late infections after trephine operations, our experiences with these drugs in the Wilmer Institute has been similar to his. In other instances, notably with tyrothricin, our experiences have not been so happy. While tyrothricin in vitro is efficacious against the gram positive organisms and theoretically should be of considerable value in the treatment of infections with such organisms, in our hands its practical value is very doubtful. The action of the substance differs from that of the sulfonamides in that it is bactericidal instead of bacteriolytic. It is also toxic to tissues, causing damage to the corneal epithelium if used frequently and lysis of the red blood cells if given parenterally. It is a large molecule, does not penetrate tissues deeply after local application and is therefore little more than a tissue cleanser. In chronic dacryocystitis we have found it of no value. We have not used it in epidemic keratoconjunctivitis or dendritic keratitis. In experimental dendritic keratitis it did not alter or shorten the course of infection in rabbits. In the treatment of endogenous uveitis with sulfonamides our experiences have been constantly disappointing. In recurrent iritis, tuberculous uveitis, choroiditis and sympathetic ophthalmia the use of sulfonamides has repeatedly been without any clinical effect. In such specific conditions as metastatic meningococcic endophthalmitis the results from sulfonamide therapy have been spectacular. In general, excepting such specific instances, I am of the opinion that the use of sulfonamide therapy in endogenous uveitis is not justified. The present indications are that penicillin will probably be our most effective agent in combating infections with the gram positive organisms.

DR. WALTER S. ATKINSON, Watertown, N. Y.: The nonspecific use of the sulfonamides should be avoided. The selection of the drug should be based on a precise knowledge of the bacteria concerned and the sulfonamide compound chosen that has the greatest bacteriostatic effect on the particular bacteria present. The empirical use of the sulfonamides locally, as for postoperative medication, is not only of questionable value but is contraindicated because it delays healing. Since the penetrability of the sulfonamide compounds varies greatly, particularly in regard to the eye, it is important to select the compound that penetrates the ocular tissues most readily so that a sufficient concentration can be maintained in the affected part. Methods suggested by Dr. Heath to increase the penetrability, and so the concentration of the sulfonamide compounds in the ocular tissues and fluids, should be carefully considered. The use of such measures as heat, iontophoresis or oxidizing agents which reduce the surface tension has been shown to increase the penetrability of the sulfonamides. The consensus is that in most instances a large dose of the sulfonamides for a short period is preferable to a small dose over a long period. Inadequate concentrations of the drug not only may be ineffective in combating the infection but may produce hypersensitization or a sulfonamide fast organism. In ambulatory patients the sulfonamides should be used only with enforceable restriction and checks. In hospital patients the occasional complication of anuria might be avoided if the fluid intake and urinary output is watched closely. Frequent estimation of the blood level should be stressed. If an adequate concentration is not maintained, the purpose of the treatment is not accomplished and harmful reactions may be produced so that larger doses given later may be of little avail. Dr. Heath's concise paper with his specific suggestions is an excellent guide for ophthalmologists and should stimulate a desire to acquire an exact knowledge of the action and use of the new chemical compounds.

DR. JOHN G. BELLOWS, Chicago: I should like to enlarge on a few points in the administration of sulfonamides. Oral administration is indicated when infection begins in the interior of the eyeball or orbit or has progressed beyond the reach of topical application, and in trachoma or gonorrheal conjunctivitis. In some conditions both oral and local administration may be the best form of therapy. A simple way to increase the concentration of sulfonamides in the cornea and the aqueous is by the addition of wetting agents such as aerosol or tergitol. Gutmann and I have shown by this means that the concentration in the cornea and aqueous can be increased fifteenfold or more. Thus in some infections of the anterior segment of the eyeball this method, by decreasing the need for oral administration, diminishes the incidence of toxic reactions mentioned by Dr. Heath. Topical application of sulfonamide compounds to the eye is governed by certain local conditions. Sulfonamides are bacteriostatic; therefore, in the avascular cornea, the drug will be less effective than in a vascularized tissue which contains a full complement of leukocytes. Detritus, secretion and certain local anesthetics decrease the local effectiveness of sulfonamides. The drugs must be used with caution in traumatic lesions of the cornea, because in the absence of normal epithelium they cause a severe injury as shown not only by delaying the healing of the corneal epithelium but also by promoting the formation of scar tissue. Therefore in corneal abrasions and injuries the local use of a sulfonamide compound should be limited to cases in which dangers of infection outweigh the cosmetic and visual factors. I wish to add to Dr. Heath's discussion of the treatment of epidemic keratoconjunctivitis that sulfathiazole desoxyephedrine decreases rapidly the pain, lacrimation, redness and swelling associated with this disease without influencing the degree of scarring.

DR. RICHARD C. GAMBLE, Chicago: The specific suggestions Dr. Heath makes for treating the commoner ocular diseases set a standard which can be safely followed. I am in agreement with his suggestions with regard to inclusion blennorrhea, gonorrheal ophthalmia, hemolytic staphylococcus conjunctivitis and pneumococcic conjunctivitis. In regard to traumatic injuries, especially those with corneal abrasion, I would suggest less local use of sulfonamides and greatly stress the general use of them. There is no doubt that the local use delays healing and may cause more scar. There is also no doubt that the internal administration of sulfonamides is of great value in infected, perforating or lacerating injuries, both prophylactically and after infection is present. In regard to epidemic keratoconjunctivitis, I have had no experience with tyrothricin. I have never seen any benefit from sulfathiazole ointment in this condition and have felt in several instances that it was harmful. It is difficult to evaluate the effect of internal sulfonamide therapy in cases of orbital abscess. In all probability many abscesses are prevented by this type of treatment for severe colds and sinus infections. If the abscess develops, however, it usually has to be drained. The sulfonamides do not cause it to absorb, but the pain and general prostration are perhaps lessened. It is unfortunate that Dr. Heath did not give more space to the subject of uveitis. In my experience this treatment has been very good in cases of iritis with hypopyon, even when gonorrhea could not be proved as the cause. It has been entirely useless in the more chronic types except (and I do not know why) in sympathetic ophthalmia, where it

seems to hold the disease process in check, giving time for the natural healing processes of the ocular tissue to act. The important thing is to hold the cellular exudate and subsequent fibrosis to a minimum until the disease becomes inactive, because the exudate and fibrosis are the factors which obstruct the pupil and cause the secondary glaucoma and the opacities of the lens and cornea.

DR. PARKER HEATH, Detroit: The discussers have recognized that different therapeutic results are inevitable since variations in virulence of the infecting agent and individual immunity meet different methods of therapy. Mention of any one therapeutic substance gives a false emphasis to its values. Tyrothrycin is an example. Dr. Woods has pointed out its limitations used alone. Dr. Atkinson has given necessary emphasis to need for precaution in use of sulfonamide and similar compounds. Dr. Bellows has reported some methods of increasing penetration locally by means of vehicles which alter surface tension. Both he and Dr. Gamble warn of local use producing delayed healing and increased corneal scarring in abrasive lesions. The discussers are largely in agreement on the use of the conventional chemotherapeutic agents. A possible exception would be in the therapy of uveitis. Since these discussions simply report without elaboration, further details will have to be presented at another time. It is likely that there will be many new synthesized substances, especially in the acridine group, of high potency, diversity and relative safety in use. It is also likely that the leukopenia occasionally noticed with sulfonamide compounds may be prevented; but the responsibility increasingly remains with the physician to know the cause of the disease and then to prescribe the treatment.

DEMEROL

CAUTION IN ADMINISTRATION TO PATIENTS WITH INTRACRANIAL LESIONS

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In 1939 Eisleb and Schaumann [1] introduced 1-methyl-4-phenyl-piperidine-4-carboxylic acid ethyl ester hydrochloride as a compound which possessed so-called spasmolytic properties along with an analgesic action. During the past five years several score papers have appeared on the action of demerol, and it has been studied in both animal and human experiments. There are several reports which indicate that demerol may be associated with habit formation [2] and there is one case report in which demerol is reputed to have induced a delirium.[3] Batterman [4] states that the drug should be administered with caution to ambulatory and elderly patients because of the high incidence of dizziness and the possibility of syncope. I am not aware of any other reports on the human being which indicate any untoward or undesirable response to this drug other than phenomena classified as side effects; the more usual of these are dizziness, perspiration, dryness of the mouth and nausea.

Batterman and his colleagues [5] found that demerol (usual dose 100 mg., range 50 to 150 mg.) was "a potent, effective, and safe (medication) for the relief of pain due to a variety of medical and surgical conditions" and that "respiratory depression occurred rarely," in only 2 of the 774 patients who received demerol parenterally. Therefore it was deemed worth while to investigate the effect of demerol on patients with intracranial lesions, in whom morphine sulfate is usually considered contraindicated because of its depressant effect on respirations and the alteration in pupillary response.

TABLE 1.—*Distribution of Lesions*

Lesions	Number
Right frontal meningioma	1
Cerebellar hemangioma	1
Left frontal subdural hematoma	1
Metastatic carcinoma	1
Schmincke tumor	2
Chromophobe pituitary adenoma	3
Craniocerebral injury	4
Intracranial glioma (various sites)	7

The observations listed in table 1 were made on 20 patients who had intracranial lesions. These patients received 100 mg. of demerol parenterally (unless stated otherwise) into the deltoid region. Data including blood pressure, pulse and respiratory rate were obtained before the drug was administered, and the so-called vital signs along with other pertinent observations were made at least each fifteen minutes, almost always by the same observer, for about three hours after the administration of demerol. All patients remained in bed during the course of these observations. Since the primary purpose of the study was an attempt to evaluate the safety of demerol in the type of case under consideration, I am including only those observations which are directly related to the question at hand. Hence, only those patients who showed what was considered an unsafe respiratory depression (a rate of 12 or less per minute for at least fifteen minutes) will be discussed in some detail. Seven individuals fell into this category; in five the rate fell to 12 per minute, while in 1 the rate went to 8 per minute and in another it reached a low of 4 respirations per minute. In the remaining 13 patients the respiratory rate fell from the premedication value of 18-22 per minute to a low of 16-18 per minute in 9 patients, 15 per minute in 3 and 14 per minute in 1.

TABLE 2.—*Observations in Case 1*

Time in Minutes	Comment	Pulse	Respiration	Blood Pressure
0	Demerol 100 mg.	60	18	110/70
15	Diaphoresis	60	14	
30	Sleeping	56	12	
45		52	12	
60	Sleeping	68	8	
75-165		52-56	14	110/70
195	Sleeping	60	18	

Abstracts on 3 of the patients who showed evidence of respiratory depression follow:

CASE 1.—R. G., a man aged 54, was rendered unconscious for two hours by a blow to the head. The patient sustained a comminuted fracture of the wall of the left orbit, and there

The Winthrop Chemical Company of New York supplied the demerol. Demerol is known as eudolat, dolantin, dolantol and pethidine in other countries.

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was a depressed fracture of the anterior wall of the left frontal sinus. There was persistent headache and dizziness but no drowsiness, nausea or vomiting. The left pupil was dilated, and there was a preponderance of the deep reflexes on the right side. The spinal fluid was xanthochromic for several weeks after admission, and at first the protein was elevated. This patient suffered from a cerebral concussion aside from his other injuries.

TABLE 3.—*Second Series of Observations*

Time in Minutes	Comment	Pulse	Respiration	Blood Pressure
0	Demerol 100 mg.....	64	18	110/70
15	.....	60	18	
25	Diaphoresis; drowsiness.....	58	17	
40	Headache eased; mouth dry.....	57	14	108/70
55	Very drowsy; slight headache.....	59	9	100/70
60-90	Pupils contracted—sluggish.....	56-60	12	105/70
105	Drowsiness.....	60	14	100/70
120	Pupils no longer contracted.....	60	18	
135-210	Became alert; headache returned..	60-64	18-20	90/65-100/70

On the sixth hospital day he was given 50 mg. of demerol by mouth. Within half an hour he became drowsy, his pulse rate fell from 72 to 52 per minute and his respiratory rate ranged between 18 and 20 per minute. Within two hours he was alert. His headache, which had eased but did not disappear, began to increase. There was never any significant change in blood pressure.

Four hours after this initial dose the patient received 100 mg. of demerol in the deltoid region.

On the seventh hospital day the patient received another 100 mg. of demerol parenterally. The pulse fell from 64 to a minimum of 56 and the respirations from 18 to 14 without a significant change in blood pressure. The patient reported only "50 per cent relief of headache." He experienced nausea and vomiting and had contracted pupils. All these symptoms and signs persisted for about an hour.

On the ninth hospital day 100 mg. of demerol was again administered parenterally (table 3).

On the fourteenth hospital day the patient received 50 mg. of demerol by mouth without any especial change in pulse, respirations or blood pressure. No side effects were noted, and the patient's severe headache was not altered. Four hours later another 50 mg. was administered, and no untoward response was noted except for the fact that the respirations fell to 14 per minute. The patient did not notice any amelioration of his headache.

CASE 2.—M. P., a man aged 36, was admitted five days after a generalized seizure. Since the convulsion he had had severe bifrontal headaches, nausea and vomiting. The patient was restless and had bilateral papilledema of 1.0 to 1.5 diopters with fresh flame shaped hemorrhages. Subsequent craniotomy revealed a right frontal astrocytoma.

Two days after admission the patient received his first dose of demerol (table 4).

TABLE 4.—*Observations in Case 2*

Time in Minutes	Comment	Pulse	Respiration	Blood Pressure
0	Demerol 100 mg.....	50	19	105/70
15	Severe headache persists.....	52	19	120/90
30	Nausea, vomiting, diaphoresis....	48	12	110/80
45	Headache has eased considerably.	47	12	110/80
60-120	Free from headache; drowsiness..	46-54	14-16	100/70
240	Headache returning.....	54	18	

On the fourth hospital day another 100 mg. of demerol was administered. There was rather a similar sequence of events. Within forty-five minutes the respirations dropped to 12 per minute for half an hour, and during this period the respirations were irregular. The pulse slowed, and there was no significant change in blood pressure. The patient had a pronounced diaphoresis, nausea and vomiting. Incidentally he did not have any nausea or vomiting during the preceding twenty-four hour period. The patient was drowsy for about two hours and there was some relief from the severe headache, but this was not very definite.

CASE 3.—C. McC., a woman aged 50, was admitted with a history of "depression" for five months and confusion and lethargy for two weeks. The patient also suffered from headaches and at the time of admission she was somewhat confused and exhibited a right hemiparesis with decidedly overactive reflexes, more so on the right. Two diopters of papilledema was present. At the time of operation, on the fifth hospital day, a left posterior parietal flap was turned and pronounced edema of the brain was observed. This observation along with the ventriculogram was deemed suggestive of a glioblastoma multiforme.

The patient was given demerol on the second hospital day (table 5).

Duguid and Heathcote [6] reported their observations on cats under urethane and ether anesthesia. They state that "the respiration was invariably affected in any dosage from 1 mg./kg. upwards. With small amounts the result was merely a slight, though prolonged degree of slowing of the rate." These investigators observed that 5 mg. per kilogram doses induced a great reduction in respiratory rate and amplitude along with some irregularity. Single 10 mg. per kilogram doses induced an immediate and permanent cessation of respiration. Also a cumulative effect on respiration was noted following a total dose of 8 mg. per kilogram. The findings of Schaumann,[7] Barlow [8] and Gruber, Hart and Gruber [9] confirm the observations on respiratory depression in animals.

TABLE 5.—*Observations in Case 3*

Time in Minutes	Comment	Pulse	Respiration	Blood Pressure
0	Demerol 100 mg. in deltoid.....	96	18	160/100
15	.....	92	18	160/110
30	Feels warm; severe headache.....	82	16	200/140
45	Diaphoresis; sleeping.....	82	14	200/130
60	Irregular respiration; long period of apnea.....	82	4	200/110
75	Pupils small, very sluggish to light	78	16	190/110
90	Pronounced drowsiness.....	82	24	170/100
105	Headache lessened.....	76	24	170/110
120	Irregular respirations persist.....	80	26	165/100
135	Periods of apnea.....	78	18	160/100
150	Still somewhat drowsy.....	78	16	160/100
165	Less drowsy; respirations regular	82	18	165/110
180	Pupils no longer contracted.....	86	24	170/110

Batterman [4] reported 774 cases in which demerol was administered parenterally, and in only 2 instances was any respiratory depression noted. The data obtained from our comparatively small and selected group of cases did not, we feel, warrant the risks of further clinical investigation on patients with intracranial lesions. There was definite respiratory embarrassment in 7 of the 20 patients, and this finding alone should serve as a caution against further use of the drug for patients with intracranial lesions.

Batterman [4] states that he did not observe any change in the pupillary response, while the corneal reflex was diminished or abolished in 80 per cent of the cases. There were, however, 7 instances in this series in which contracted pupils developed after the administration of demerol. Instances of corneal hypalgesia and analgesia were observed.

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CONCLUSIONS

Twenty patients with intracranial lesions were given demerol parenterally in therapeutic doses on one or more occasions. In 7 of the 20 patients the respiratory rate fell from the usual rate of 18-22 per minute to 12 per minute or less. In 5 patients respirations fell to 12 per minute, in 1 patient to 8 per minute and in another patient to 4 per minute. Also instances of contracted pupils with sluggish response to light were observed.

It is felt that, from the data which are at hand, demerol should be administered with caution, if at all, to patients with intracranial lesions.

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INDUSTRIAL AND DOMESTIC INJURIES OF THE EYE

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Wounds of the eye vary in type and severity according to the type of agent and the amount of force that produced them. Injuries in industrial and domestic life differ from those that occur in military service in that the forces exerted in their production are of different origin and violence. War injuries occur from high explosive bombs, flying fragments of rock and other débris, chemical gas burns, and from the many other modern engines of warfare. War wounds of the eye are accompanied frequently by injuries to the body trunk, face and skull. Both eyes may be damaged. Many different types of ocular injuries may occur to the same person. If a penetrating wound of the orbit or globe is present, more than one foreign body, usually nonmagnetic, may be lodged in the tissue.

Industrial and domestic accidents resulting from other sources of power are on the whole less violent than those that occur in battle. They seldom involve both eyes, are single and are accompanied less frequently by trauma to other parts of the body.

Industrial accidents come from plants that are manufacturing articles with power driven machinery, transportation systems, mines, chemical supply depots and heavy trades. There is ample opportunity for injuries to occur to workmen. The incidence of injury is kept at a minimum by the safety measures instituted for that purpose. Safety engineers, machine guards, protective goggles and the educational safety campaign all contribute to reduce the incidence of industrial injuries. It is obviously impossible to eliminate accidents from the factory entirely, and particularly is this true when there is as large an influx of inexperienced workers as under present conditions.

A certain number of ocular injuries occur in homes and in agriculture. The domestic accidents occur with sharp and pointed articles such as knives and scissors, with various chemicals and with heat. A good illustration of the latter is that associated with improper operation of a pressure cooker. The farm has been mechanized and it is now necessary for the farmer to operate and service equipment that is made with precision and of as many metal alloys as are found in equipment in the factory or on the railroad. The farmer is exposed to ocular injury, and yet it is most unusual for him to possess protective goggles. A short time ago it was my duty to care for a farmer who lost one eye from striking a chisel with a hammer while repairing a lock on a gate. It is more difficult to conduct an efficient educational safety campaign in the home and on the farm than it is in the factory. The latter offers the greater hazard, but it is much easier there than elsewhere to keep ocular injuries at a minimum.

The first step in consideration of ocular injuries is efficient means to prevent accidents. It is impossible to prevent all injuries of the eyes but the number can be kept at a low percentage compared with the man hours of work.

The second step is prompt and efficient first aid treatment of the injured workman. This may be the copious washing of the eye with tap water by the injured person after a chemical burn. Fellow employees may be taught to give valuable assistance during the time required for the plant physician to reach the scene of the accident. Almost all factories, both large and small, have a first aid station where sterile dressings and medicines are available. The larger factories have physicians in constant attendance.

A greater number employ a registered nurse who administers simple first aid treatment and is under the supervision of a physician on part time duty. First aid treatment should be administered by an experienced person, preferably by a nurse or a physician. The fellow employee may be more dangerous than helpful unless he has been taught by a physician what steps to take. Some years ago I treated a man who was given first aid by a fellow employee for a superficial foreign body injury of the cornea. The foreign body was not removed. Tincture of iodine was mistakenly applied to the eye for mild protein silver.

I do not think that a foreign body that clings to the tissue or is embedded should be removed from the eye by any one other than a physician. He should be provided with proper equipment for illumination and magnification of the eye and should observe strict asepsis in the sterilization of the instruments and in the care of the wound.

Superficial injuries of the eyeball constitute the larger number of all ocular injuries. Each one should be viewed as being potentially dangerous. Bacteria may be introduced into the tissue by the foreign body itself, by the instrument used in the removal of the foreign body or from the lacrimal apparatus or infected conjunctiva before the wound becomes covered with epithelium. For the past several years I have instilled plain cod liver oil whenever there has been a break in the epithelium of the cornea as after the removal of an embedded foreign body, an abrasion or a burn. It has proved to be exceptionally soothing for electric flash burns involving the cornea. The recent addition of a local anesthetic found to be soluble in cod liver oil has enhanced its value.

All simple or superficial injuries of the eye ball should be examined with great care, for what appears to be a minor injury may indicate the presence of an intraocular foreign body.

The care of intraocular foreign body injuries is not considered in this article, but emphasis must be placed on alertness of the ophthalmic surgeon to detect the presence of one after a penetrating injury has occurred.

Injuries of the eyelids in industrial and domestic pursuits are as a rule limited to punctures, contusions, lacerations and burns. Surgical attention to injury of the eyelids requires the application of those principles of surgery employed for other parts of the body. During repair of an interruption of the continuity of the eyelids

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attention is given to the direction of the fibers of the orbicularis oculi muscle, the attachment of the levator palpabrae muscle, good apposition to the cut margin of the eyelid and careful reapposition of the tissue when the lacrimal apparatus is involved in the injury. Owing to the vascularity and laxness of the eyelids, much greater edema and discoloration occur than from similar injury to other parts of the body.

The same force that produces a contusion of the eyelid may fracture the bony rim or the walls of the orbit. Examination of the parts should be made by palpation and with the x-rays.

An interruption of the continuity of the eyelid may suggest the presence of an orbital foreign body or an opening into the eyeball. All foreign bodies should be removed from the tissue whenever possible. Some substances are tolerated by the tissue with but little reaction. Foreign bodies in the orbit that do not introduce sepsis or chemical irritation may be permitted to remain if their removal would require extensive surgical trauma. An opening into the eyeball requires prompt careful surgical repair if the eye is to be retained and should be done before repair of the eyelids is undertaken. The use of the sulfonamide compounds both locally and internally for injury of the eyelids is a recent advance. Appropriate serums and antitoxins are to be administered according to the surroundings where the accident took place.

Injuries of the eye are influenced not alone by the force and the agent of their production but also by the anatomic protection that nature has provided. The eyeball is protected by the eyelids and the bony walls of the orbit and skull. The orbit may be described roughly as cone shaped with the apex at the optic foramen and the base formed by the eyelids. The contents of the orbit play a part in the function and the control of the eye and act as intermediate protective tissue in that they cushion it against the reception of violent force.

The shape of the eyeball is an example of structural defense. It may be described as a sphere with the cornea being a portion of a smaller sphere superimposed on it in front. This gives the maximum strength that is possible to the walls and protection to the tissue contained within.

The shape and the structure of the eyeball lead to certain types of injury. The weakest places in the wall of the eyeball are at the junction of the cornea with the sclera and at the entrance of the optic nerve into the sclera. With a hard blow a break in the tunic of the eyeball will occur at these places. The shape of the eyeball, being essentially a sphere, leads to injury of the internal structures by contrecoup.

Injury to the intraocular structures without a perforating wound may involve any of them, and the ones most commonly damaged are the iris, the ciliary body, the lens, the retina and the choroid. Laceration of the sphincter muscle of the iris and iridodialysis are common findings following a blow on the anterior portion of the eyeball. Hemorrhage may be extensive. The lens capsule may be interrupted by a sudden sharp blow on the eyeball when sufficient force is exerted to indent the ocular coat enough to rupture the lens capsule. Traumatic cataract is the result. The opacity frequently begins in the posterior cortex. Injury of the retina and choroid may vary from edema to laceration of the tissue or to detachment of the retina.

The care of nonpenetrating injuries of the eyeball is at first symptomatic: sedative drugs for pain, rest in bed, cold or hot compresses, and atropine to abolish accommodation and to put the iris at rest. Detachment of the retina requires early surgical attention. Traumatic cataract is to be treated surgically according to the development of the opacity and the other conditions of the eye. Secondary glaucoma must be treated according to the general rules for this condition and according to the experience of the surgeon.

Penetrating wounds of the eyeball comprise the more dangerous and destructive group of injuries. The presence of an intraocular foreign body must be considered and when there is a possibility of one being within the eyeball it must be searched for. To overlook one is to invite permanent loss of vision with other and more grave consequences—recurrent uveitis with possible sympathetic ophthalmia of the second eye. When the eyeball is to be retained, the wound is cleansed, prolapsed tissue is cut away and the wound margins are united as accurately as possible with fine sutures. Laceration of the cornea is protected by some form of sliding conjunctival flap until the wound of the cornea has united, and then the flap returns to its original site. Prolapse of the ciliary body and choroid never should be treated by removal of the prolapsed tissue. An injury through the zone of the ciliary body, particularly with prolapse of tissue, is ideal for the production of sympathetic ophthalmia. When the eyeball has been damaged so severely that there is no prospect of retaining useful vision, enucleation should be done at once. It is more conservative to remove a severely damaged eyeball than it is to retain one and invite sympathetic ophthalmia which may mean blindness in both eyes. Care and judgment must be exercised by the surgeon when a decision is made concerning enucleation of an injured eyeball. For the injured eyeball not removed, careful medical attention and nursing are necessary.

SUMMARY

1. The prevention of ocular injuries commands an important place in industry, agriculture and the home.
2. Efficient first aid treatment is important in reducing the loss of man hours of work, in relieving the suffering associated with the injury and, most important of all, in retaining useful vision of the injured eye.
3. Penetrating and nonpenetrating wounds are treated according to the rules that have been proved best by years of experience of the medical profession.
4. Particular care should be taken to avoid sympathetic ophthalmia when there has been an injury of the uveal tract, especially of the ciliary body.

23 East Ohio Street.

ABSTRACT OF DISCUSSION

Dr. William F. Holzer, Worcester, Mass.: In my community, where industries are essentially machine tool, abrasive machinery, i. e. grinding wheels, rolled steel and wire drawing, we do not encounter the severe mutilating wounds common to mine accidents or munition plants explosions. Most injuries are foreign bodies in the cornea or abrasions of the cornea. The air hose in cleaning casting is responsible for a number of injuries, as the small chips are blown in the eyes around the glasses or under the side shields. Occasionally a grinding wheel will break, inflicting more serious injury. Our practice is to remove the foreign body, curet the cornea thoroughly, cauterize with 95 per cent phenol and leave the eye uncovered. Sulfathiazole (5 per cent ointment) is applied in the lower cul-de-sac and a tube of 1 per cent phenacaine hydrochloride and epinephrine 1:50,000 ointment dispensed, to be used every hour or two as required. Atropine is not used, as the accommodation is disturbed long after the corneal wound has healed and the workman finds it difficult to do his work well, particularly if

he is doing precision work. More serious wounds are treated as outlined by Dr. Clark. As to domestic injuries, we see the ordinary incised wounds of the cornea and sclera caused by scissors, and knife wounds by cutting knotted shoe laces or string on bundles. A rather common injury is a corneal abrasion caused by infants' fingernails. These may be extensive and very painful; usually phenacaine ointment and a pad will facilitate healing. Another not uncommon domestic injury is that caused by the BB shot. In my experience most of these are extraocular, i. e. in the lids, under the conjunctiva or passing around the sclera rather than penetrating. If accessible they are removed, but if removal is likely to produce considerable trauma they are left in situ. X-ray examination should be made and the patient or parents advised that the foreign body has not been removed. This avoids legal complications. If any foreign body cannot be removed with a cotton applicator by a nurse, the patient should be referred to a physician, and any person with a foreign body in the pupillary area should be referred to an ophthalmologist. The use of safety goggles should be made obligatory in all hazardous occupations and neglect to wear them punishable by lay off periods or discharge for frequent violations. The presence of an intraocular foreign body should not be overlooked, particularly with a history of a hammering operation. In such cases an x-ray examination should always be made to rule out the presence of a foreign body and to avoid future embarrassment.

DR. HUGO L. BAIR, Rochester, Minn.: A common error is the failure to remove early enough a blood clot that fills the anterior chamber following contusion of an eye. Many such eyes have been lost owing to hematogenous infiltration of the cornea and secondary glaucoma. If, within a day after the injury, clear aqueous cannot be seen above the blood in the anterior chamber, it is wise to open the anterior chamber and wash out the blood and remove the clot. It is inadvisable to do this immediately after the contusion because of the likelihood that the source of the bleeding has not become well closed and that further hemorrhage may follow sudden lowering of intraocular pressure. The immediate treatment of such contusions should be to put the patient at absolute rest in bed with both eyes bandaged. I prefer to use neither atropine nor miotics at first, relying simply on rest in bed and the complete bandaging of both eyes to keep the injured eye internally and externally at rest. There is overuse of the conjunctival flap for penetrating lacerations of the cornea. Although once a stanch user of it, I recently have considered it to be an unnecessary evil and have abandoned its use in such cases. Preparation of a conjunctival flap causes considerable additional trauma to and subsequent reaction in the already injured eye. It prevents satisfactory observation of the site of the wound and may conceal the development of hypopyon, iridocyclitis or other intraocular complications of the injury. Along the margins of the flap on the cornea, mucus and débris usually collect to the detriment of the healing processes. With large lacerations of the cornea, the tension exerted by a flap may cause inversion and improper apposition of the edges of the wound. With ragged or infected corneal wounds, adhesions of the flap to the healing wound frequently occur, causing dense leukomas and much corneal irregularity. The larger corneal lacerations should be closed with corneal sutures approximately ¼ inch apart. This does not make such a tight closure that aqueous cannot seep out a bit between the edges of the wound, which I believe to be desirable, and yet it keeps the edges of the wound in good enough apposition for proper healing. Usually with corneal wounds of about ⅜ inch length or less, sutures are not necessary.

DR. EDWARD W. GRIFFEY, Houston, Texas: The microscopic appearance of the fully developed reaction to flash burns of the eye after exposure to the welder's arc is characteristic. In the cornea initially there is nuclear chromatolysis associated with a swelling and edema of the cytoplasm. Thereafter acidophil staining becomes evident in the nucleus, which progresses to the formation of highly refractive red granules within it; these coalesce into discrete "inclusion bodies," which may eventually replace the whole of the nucleus. Finally the inclusions may be extruded from the nucleus into the cytoplasm and thereafter the cell dies; it is desquamated if it is a superficial one. The clinical course of such an exposure is typical. Early there is a latent period during which time no effects are visible. Between the latent period and the beginning of the acute symptoms, when the corneal edema is obvious and typical halos are most evident in the human subject, the cornea becomes practically anesthetic. The latent period varies in length inversely as the severity of exposure, averaging from eight to twelve hours. At the end of this time there is a rapid onset of a severe, sharp, continuous ocular pain associated with profuse lacrimation, photophobia and later blepharospasm. At this time the cornea shows a slight irregularity of its reflex and a stippling of its surface, which takes on stain with fluorescein. Even before the onset of corneal pain the patient may experience a pricking sensation about the eye, may see halos about lights (due to corneal edema), and there is seen an erythema of the skin of the lids on the side involved. The clinical picture is at its height in thirty-six to forty-eight hours after irradiation. Thereafter it gradually clears up until, four or five days later, the cornea becomes clear again, the conjunctival injection dies down and the eye becomes normal in eight to ten days. A simple and effective remedy, which in the early initial phase amounts to a good prophylaxis, consists in the use of epinephrine. That is, if three successive instillations of 1:1,000 epinephrine are made at five minute intervals shortly after the onset of ocular pain following flash burn and before objective findings are too obvious, the large majority of patients gain prompt relief and can return to work immediately. The severely burned will require 0.5 per cent pontocaine or 1 per cent holocaine.

DR. ALBERT C. SNELL, Rochester, N. Y.: In industry adequate provisions for rendering such aid should be available in every plant both large and small. These provisions should include proper equipment and supplies, also definite written instructions which are to be followed by the available personnel. Such equipment, supplies and instructions are almost entirely lacking in the small industrial plants; hence the greater relative loss of vision in these plants and the need for better care. The only exception which I wish to take is to the statement that "prolapse of the ciliary body and choroid never should be treated by removal of the prolapsed tissue." Dr. Clark does well to warn of the possibility of sympathetic ophthalmia in these types of injury. However, in my opinion small or medium sized prolapsed parts of the ciliary should be amputated thoroughly. I would also institute sulfonamide therapy together with atropine and antiseptics. But one should always be alert to the possibility of sympathetic involvement! Some of these injured eyes can be saved and should be when vision has not been severely damaged. Since the first week following these injuries is free from the danger of sympathetic ophthalmia, these injured eyes may be kept under observation, at least during this time, without unwarranted risk. In minor degrees of prolapse of the choroid, usually with some vitreous, amputation should be done and prophylactic treatment employed. This can be done without much danger of sympathetic ophthalmia. However, extensive prolapses and a blind eye suggest removal of the eye. Atropine should not be instilled in every injured eye, especially in superficial foreign body injuries—a practice which is commonly followed by first aid personnel. This practice causes much unnecessary lost time for employees. The use of atropine should be left to the ophthalmologist. There is need of a better ophthalmic service in most industrial plants.

DR. C. P. CLARK, Indianapolis: The subject can be summarized briefly: an aggressive educational campaign to prevent accidents where they are most likely to occur, prompt and efficient emergency care for the injured, and employment of good ophthalmic surgical practices for those persons more seriously injured. The methods of accomplishing these aims may vary according to the locality and the facilities that are available.

Clinical Notes, Suggestions and New Instruments

GASTROJEJUNAL HEMORRHAGE FOLLOWING GASTROENTEROSTOMY FOR HYPERTROPHIC PYLORIC STENOSIS OF INFANCY

LIEUTENANT COMMANDER G. ARNOLD STEVENS (MC), U.S.N.R. AND WILLIAM C. BOECK, M.D., LOS ANGELES

Prior to the introduction of the Rammstedt operation, hypertrophic pyloric stenosis was treated surgically by gastroenterostomy. Although the newer procedure, which has since been universally adopted, was first described by Rammstedt in 1912, certain surgeons persisted for some time in making gastroenterostomies on infants with congenital pyloric stenosis.

To our knowledge 4 cases have been reported in medical literature because of bleeding incident to gastrojejunal ulcer following gastroenterostomy for hypertrophic pyloric stenosis. The ages of these patients at the time they presented themselves for definitive surgery ranged from 22 to 30 years. The first case was reported in 1940 by Fowler and Hanson[1] and treatment was taking down the gastroenterostomy and making a conservative type of pyloroplasty. In 1941 Waltman Walters[2] reported 3 cases in which he took down the gastroenterostomy and made the Billroth I type of anastomosis. So far as we have been able to ascertain, all 4 of these patients have remained well following the final surgical procedures.

We add 5 cases to those previously reported (4 through the courtesy of Waltman Walters,[3] Edward J. Donovan[4] and John Ruddock[5] and 1 of our own). One year ago Walters took down the gastroenterostomy and made a Billroth I anastomosis on a young man who had previously been operated on for perforation of a gastrojejunal ulcer by Donovan, with a result which has been satisfactory to date. Donovan also made a Billroth I resection and took down the gastroenterostomy on a man aged 29 for a large bleeding jejunal ulcer following gastroenterostomy performed at 6 weeks of age for hypertrophic pyloric stenosis. Donovan stated to us that "the pylorus was exactly like those found in cases operated on in infancy." Ruddock has seen 3 cases of hypertrophic pyloric stenosis in one family. Two brothers (26 and 28 years old) had gastroenterostomy performed in infancy. Both of these began to bleed at the age of 24 years. The one 28 years old received x-ray therapy less than two years ago and has not bled since. The other (26 years old) also had x-ray therapy and has since had a recent hemorrhage. X-ray examination revealed partial duodenal obstruction in both of these cases. The sister had a Rammstedt operation. She has had no bleeding and has been clinically well.

The case we report differs from the others in two respects. In addition to the taking down of the gastroenterostomy a radical type of pyloroplasty was effected and a segment of the jejunum containing four ulcers, one of which was actively bleeding, was removed.

REPORT OF CASE

A white man aged 31 was admitted to the hospital by one of us (Boeck) with a diagnosis of hemorrhage probably incident to gastrojejunal ulcer. Gastroenterostomy had been performed when he was 6 weeks old for hypertrophic pyloric stenosis. At the age of 19 years his first hemorrhage occurred. At this time he vomited "coffee ground" material and had "tarry" stools. He stated that the attending doctor told his family that he was in "shock" as a result of severe hemorrhage of the stomach. All in all, nine hemorrhages occurred during a twelve year period, the last of which was on the date of his admission to the hospital. The shortest period between hemorrhages was one month. The longest period was two and one-half years. In 1938 gastric analysis at the Presbyterian Hospital of Pittsburgh showed total acids 36, free acids 24 and loosely combined acids 12. About two months before the onset of the last hemorrhage x-ray examinations showed some pyloric obstruction but were otherwise negative. Gastroscopy did not reveal gastrojejunal ulcer.

After conservative medical treatment for one week in the hospital the patient persisted to bleed, so it was felt safer to intervene surgically. The patient was given 1,000 cc. of whole blood by transfusion immediately before operation, after which the blood pressure was 110 systolic, 60 diastolic. The blood count at this time showed 3,800,000 red cells, 10,000 white cells and hemoglobin 65 per cent. All other routine laboratory tests were negative.

Operation was performed by one of us (Stevens). The gastroenterostomy was taken down and a segment of jejunum was removed containing a diverticulum at the suture line and four jejunal ulcers. The largest of these contained an actively bleeding vessel. The opening in the stomach was closed and intestinal continuity was reestablished by end to end anastomosis of the jejunum. Because of partial obstruction caused by the hypertrophied musculature of the pyloric region, a radical type of Judd pyloroplasty was made, the wedge on each side being excised far posteriorly. This left but a small section of gastroduodenal tissue to serve as an anchor for the suture line. The postoperative convalescence was uneventful. The patient was dismissed from the hospital on the ninth postoperative day. He has been well since (one and one-half years).

PATHOLOGY

The diagnosis made by the pathologist was multiple ulcers of the jejunum, acute and chronic, with one diverticulum.

The specimen consisted of a section of jejunum including the gastrojejunal suture line. Protruding externally from the posterior suture line was a diverticulum 8 mm. deep with a base 5 mm. in diameter. There were four jejunal ulcers, the largest of which was 8 mm. in diameter and the smallest 5 mm. in diameter. Two of the ulcers appeared acute. The larger was deep and contained an open vessel, which was apparently the spurting artery seen as the jejunum was opened at operation. Two of the ulcers appeared chronic and were covered with a gray base, apparently scar tissue. The bowel wall, corresponding to the larger of these, was thinned out so that it produced a false diverticulum.

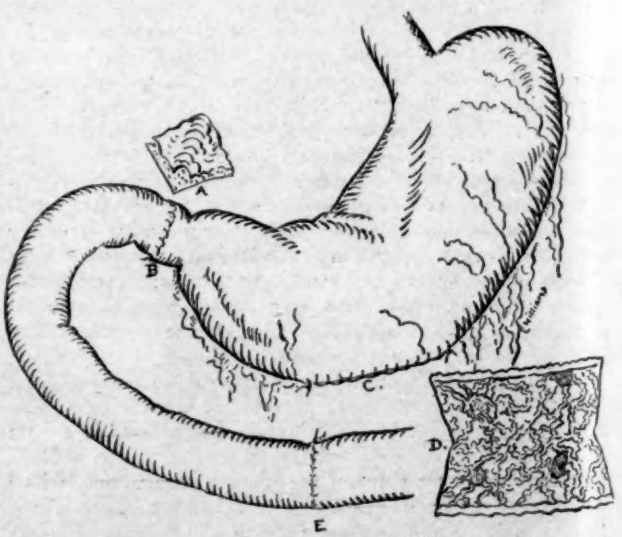

Fig. 1.—*A*, section of pylorus removed; *B*, reconstructed pyloric region; *C*, closure of defect in stomach; *D*, excised jejunum showing four small ulcers; *E*, jejunal continuity reestablished by end to end anastomosis.

This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writers and are not to be considered as reflecting the policies of the Navy Department.

1. Fowler, L. H., and Hanson, W. A.: Gastrojejunal Ulcer Following Gastroenterostomy Performed Twenty-Four Years Before for Pyloric Stenosis of Infancy, Minnesota Med. **23**: 602 (Aug.) 1940.
2. Walters, Waltman: Partial Gastrectomy (Billroth I) for Hemorrhagic Gastrojejunitis Following Previous Gastroenterostomy for Congenital Pyloric Stenosis: Report of Three Cases, Proc. Staff. Meet., Mayo Clin. **16**: 321 (May 21) 1941.
3. Walters, Waltman: Personal communication to the authors.
4. Donovan, Edward J.: Personal communication to the authors.
5. Ruddock, John: Personal communication to the authors.

Histologic sections through the acute ulcers showed absence of the mucosa with congestion of the submucosa and invasion by polymorphonuclears and lymphocytes. Section through the chronic ulcers showed absence of mucosa and submucosa and replacement with connective tissue.

COMMENT

The cases reviewed in this report present certain factors in common. In all gastroenterostomy was performed in infancy for hypertrophic pyloric stenosis. All showed a partial persistence of the pyloric defect. In all there were repeated hemorrhages incident to jejunal erosion or ulceration and all were cured by the combined surgical procedures of taking down the gastroenterostomy and correction of the partial pyloric obstruction. None of the patients had gastric or duodenal ulcer.

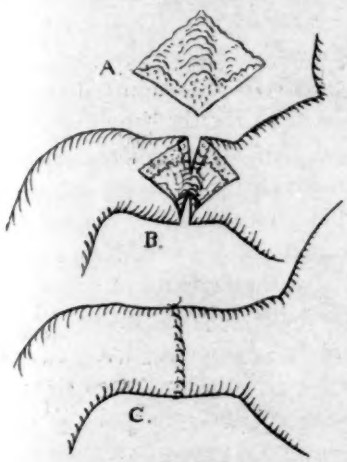

Fig. 2.—*A*, excised gastrojejunal segment showing hypertrophied musculature of the pyloric region; *B*, gastrojejunal defect following excision of *A*; *C*, reconstructed pyloric outlet.

There were several interesting features in the report of the cases of Walters. In 2 of these pylorectomy had been performed elsewhere and in 2 cases perforating jejunal ulcers had been excised with simple closure of the jejunum. In none of these was cure effected until the gastroenterostomy had been subsequently taken down. Reduction of gastric acidity was noted by Walters in 3 cases after taking down the gastroenterostomy and making a Billroth I type of gastric resection. In 1 of his cases relative achlorhydria was present before surgery.

In our case also relatively low acids existed before the operation was performed.

Thus 2 cases of the small group reported showed relatively low gastric acids before operation, yet the same pathologic condition developed as in those with normal or high acids. Is it then reasonable to place too much importance on gastric acidity as a major factor in the pathogenesis of gastrojejunal ulcer in this type of case?

It is true that one of the patients seen by Ruddock received x-ray therapy in the hope of preventing further ulcer formation by lowering gastric acidity. This patient has not bled for almost two years. On the other hand, our patient went as long as two and one-half years between hemorrhages and he had received no x-ray therapy. It seems reasonable to assume that the patient who did have x-ray treatment will probably bleed again.

Gastroscopy between hemorrhages on our patient was negative. It therefore appears that the jejunal erosions and ulcerations tend to heal intermittently and that the healing is only temporary.

Since our patient showed relatively low acids, it seemed to us unnecessary to subject him to the added risk of any type of gastric resection. Therefore the obstruction was treated by pyloric reconstruction.

All of the patients have remained cured after the gastroenterostomy was taken down, with adequate correction of the pyloric defect, regardless of whether the procedure of gastric resection or pyloroplasty was used.

More time must elapse before the relative merit of these procedures can be evaluated conclusively. It does seem reasonable to conclude, however, that any combination of surgical procedures must include taking down the gastroenterostomy in order to effect a cure of this condition.

Committee on American Health Resorts

THE COMMITTEE ON AMERICAN HEALTH RESORTS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT ON THE ACCEPTANCE OF THE TORBETT CLINIC AND HOSPITAL. A COPY OF THE RULES ON WHICH THE COMMITTEE BASES ITS ACTION WILL BE SENT ON REQUEST.

W. W. BAUER, M.D.

TORBETT CLINIC AND HOSPITAL, MARLIN, TEXAS, ACCEPTABLE FOR LISTING BY COMMITTEE ON AMERICAN HEALTH RESORTS

The Torbett Clinic and Hospital, Marlin, Texas, applied for listing by the Committee on American Health Resorts of the American Medical Association. The Committee has been furnished with all the information required under its rules, including copies of advertising and promotional material, and a report on an inspection by a Committee representative. The submitted information and the report indicate that the institution is operated in accordance with the rules of the Committee. The distribution of advertising material not in accordance with these rules has been discontinued.

The Committee on American Health Resorts is satisfied that Torbett Clinic and Hospital is being operated in accordance with the rules of the Committee and has placed this institution on the list of American Health Resorts complying with the Committee rules for a period of one year beginning Nov. 1, 1943. This listing may be continued for three year periods if the listed institution continues to comply with the rules.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

DISINFECTAIRE ULTRAVIOLET GERMICIDAL UNITS
(Hospital Operating Room, Nursery and Ward Models) ACCEPTABLE

Manufacturer: Art Metal Company, 1814 East 40th Street, Cleveland.

The Disinfectaire Ultraviolet Germicidal Units Nos. 2543, 2545 and 2607 are designed to irradiate the upper air of a room with ultraviolet radiation for disinfecting purposes. The fixtures are said to be so designed that when correctly installed there is little or no direct irradation of individuals. Unit No. 2543 is described as a "Standard Indirect Type," Unit No. 2545 a "Bactericidal Barrier Direct-Indirect Type," and Unit No. 2607 is termed a "Suspended Bactericidal Barrier Direct-Indirect Type."

The source of irradiation in each of the models is the General Electric 30 watt germicidal lamp. This lamp is described in the Council report "Ultraviolet Lamps for Disinfecting Purposes."[1] Careful consideration should be given to the introductory statement of this report because it presents detailed information about the limited conditions under which the units may be employed efficaciously.

In the aforementioned report it is pointed out that Council acceptance is limited to ultraviolet disinfecting lamps designed for installation in hospital nurseries, hospital wards and operating rooms where the radiation has been found useful as an adjunct to other measures of asepsis. Ultraviolet lamps are not accepted for disinfecting air in schools, waiting rooms, public gathering places and large halls because satisfactory evidence is not available to warrant their acceptance for such purposes. For the same reason the units are not accepted for disinfecting solids such as drinking cups, combs, brushes, shaving utensils, toilet seats and shoes.

The Council voted to accept the Disinfectaire Ultraviolet Germicidal Units Nos. 2543, 2545 and 2607 for inclusion in its list of accepted devices.

1. Council on Physical Therapy: Ultraviolet Lamps for Disinfecting Purposes, J. A. M. A. **123**: 92 (Sept. 11) 1943.

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SATURDAY, JANUARY 15, 1944

THE PHYSICIAN AND THE FOURTH WAR LOAN

Nervi belli pecunia infinita (The sinews of war are infinite money).—Cicero.

On January 18, throughout the nation, the 4th War Loan campaign begins. Fourteen billion dollars is the goal that has been set; five and one-half billion of this sum is to be secured from individual purchasers. The physician, as an individual, will be approached through his bank, his clubs, his hospital, his university and medical school and his home. The state and county medical societies may cooperate, if they wish, by making an organized approach to their membership, assigning quotas to individual physicians and establishing special war loan committees to make certain that each physician hears personally of the need for his individual investment in this war loan. No doubt many county and state medical societies will wish to engage in the 4th war loan campaign as an organizational effort; they may welcome speakers to address their sessions. Certainly every leader of American medicine will wish to do the most that he can to aid in achieving the goals that have been established.

One third of the active medical profession have sought and accepted commissions in the armed forces; the physicians of our country not only "Back the Attack" but also play their part in it. Physicians who remain at home are participating in the war to the limits of their physical strength. They work on Selective Service boards, in the activities of health departments, in civilian defense, in the care of the injured in industry, in the campaigns against epidemics and disease. They are maintaining the high tradition of the profession. Since the very nature of their occupation makes difficult an organized approach, such as is made to workers in businesses, industries, trades or other occupational classes, they will quite certainly subscribe as individuals for war bonds to the fullest extent that their finances permit.

To carry on war three things are necessary: money, money, and yet more money.—Trivulzio's message to King Louis XII.

The glorious victories of our troops, wherever they are engaged, give to every American the thrill that comes in greatest measure to those who participate in the victory. The message of General Clark to General Kirk extolling the accomplishments of the medical corps at Salerno, the magnificent statistics of recovery of the wounded, of the prevention and cure of infectious diseases, of health and nutrition arouse a pardonable pride in each of us. The physician's responsibilities as a leader in his community, as a citizen and as a teacher place on him a special responsibility in the nationwide drive for the 4th War Loan. His patients will respect him all the more when he urges on each of them his patriotic duty and when he tells them the extent to which he himself has subscribed. Some years ago in Newark, N. J., when funds were being raised for the building of a hospital, Cardinal Walsh climaxed the appeal, saying "Look into your hearts; think of the most that you can subscribe and then double it!" Our leaders in this 4th War Loan drive have set the quota as "at least one extra $100 bond for every person with income." The peril of inflation may be met to some extent if even that hundred dollars is siphoned away from the explosive excess purchasing power that now resides in many an American purse.

War is a matter not so much of arms as of expenditure, through which arms may be made of service.—Thucydides.

American production has been a most important factor in the success of the United Nations. We glory in the sufficiency of armament, in the amplitude of nourishment, in the quantity and quality of our medical supplies. Here are a few costs submitted by government sources:

Collecting station equipped to give 600 battle casualties emergency treatment or a mobile surgical unit—a truck equipped to provide special surgical care for serious casualties	$ 4,200
Clearing station providing temporary care for the wounded	30,000
Ambulance plane for transportation of seriously wounded	110,000
General hospital of 1,000 beds	300,000

As an aid to the bond campaign, organizations which sell $110,000 worth of bonds within their time limit may name "their" ambulance planes, and groups buying ambulances or an ambulance train have the privilege of placing a plaque on "their" equipment. Thus the hospital at home may have a namesake in service at the front.

The securities for the 4th War Loan are designed to encourage long time investment of savings and current income. Money thus invested serves many objectives; primarily, however, it is the very sinews of war, the weapons and munitions of combat, the food to sustain the fighter, the medical supplies for the care of

the wounded, the clothing and the housing facilities of troops in training and at the front. And as the war moves on to its conclusion in triumph these funds serve not only to "Back the Attack" but to "Bring Them Back."

HUMAN SERUM COMPLEMENT

Ecker and his co-workers[1] of the Institute of Pathology, Western Reserve University, report the fractionation of human serum complement into four essential components. Originally Bordet, Ehrlich and others assumed that "complement" or "alexin" is a single chemical entity, a panimmunizing enzyme that requires specific antibodies for its lytic action. This concept was soon challenged by Ferrata,[2] who showed that if guinea pig serum was separated into a globulin and albumin fraction neither fraction contained complement but that the original complement titer could be restored by combining the two fractions. Complement thus became an albumin-globulin complex, the terms "end piece" and "mid piece" being applied to the two fractions, so that complement was still conceived to be a single chemical entity.

In 1914 Coca[3] suggested that there was a third essential factor in guinea pig complement, which could be specifically absorbed on yeast or on insoluble yeast carbohydrate ("zymosan"). This third component is believed to be a lipid. A fourth essential component was afterward discovered in guinea pig complement,[4] a heat stable fraction specifically inactivated by dilute ammonium hydroxide or by hydrazine. This fourth component contains a reactive carbonyl group, which presumably accounts for this inactivation.

A simplified terminology[5] for the four essential components of guinea pig complement is now in general use, the symbols C'1, C'2, C'3 and C'4 being substituted for the "mid piece," "end piece," "third component" and "fourth component" respectively of the older nomenclature. When guinea pig complement exerts its hemolytic, bacteriolytic or bactericidal activity, C'4, C'2 and varying amounts of C'1 combine with the antibody-antigen complex (e. g. sensitized bacteria), the essential enzyme (C'3) remaining unbound. A deficiency of any one of the four factors inactivates guinea pig complement. Thus in the hereditary complement deficiency of certain strains of guinea pigs there is a hereditary lack of C'3, the three other components being apparently normal.[6] An excess of C'1 in guinea pig serum is anticomplementary.

Applying the same technic to human serum, the Cleveland pathologists found that human complement also is a complex of at least four essential components, only one of which (C'3) is identical with the homologous factor in guinea pig serum. Another factor (C'1) is mutually interchangeable with the homologous component of cow or sheep serum. In human serum also the bactericidal or hemolytic action is destroyed by inactivation of any one of the four components. Of particular interest is their finding that a serum fraction which contains only C'2, C'3 and C'4 has the power of "fortifying" normal human complement.

Study of human complement variations under pathologic conditions now in progress in the Cleveland laboratory may lead to new or improved serodiagnostic methods or to successful methods of correcting, fortifying or maximizing normal or pathologic human complement. The latter might be of wide clinical interest, particularly in connection with future methods of fractional plasma transfusion.

1. Ecker, E. E.; Pillemer, L., and Seifter, S.: J. Immunol. **47**: 181, 195, 211, 221 (Sept.) 1943.
2. Ferrata, A.: Berl. klin. Wchnschr. **44**: 366, 1907.
3. Coca, A. F.: Ztschr. f. Immunitätsforsch. **21**: 604, 1914.
4. Gordon, J.; Whitehead, H. R., and Worwall, A.: Biochem. J. **20**: 1028, 1036, 1926.
5. Pillemer, L., and Ecker, E. E.: Science **94**: 437 (Nov. 7) 1941.
6. Hyde, R. R.: J. Immunol. **8**: 267, 1923.

THE WAR AND THE DISTRIBUTION OF PHYSICIANS

The effect of the war on the distribution of physicians has recently been discussed by Perrott and Davis.[1] These investigators of the United States Public Health Service report a survey of the changes in the medical manpower picture. Moreover, they attempt an estimate of the changes to take place during the next few years.

The war has withdrawn about one third of the active practitioners of medicine in the United States. The rate of decrease in the number of civilian physicians from Jan. 1, 1942 to the present time has been precipitous. There were more than 130,000 active private practitioners on Jan. 1, 1942; there will be only about 85,000 at the end of 1943. The recruiting of practicing physicians has already diminished greatly; the armed forces will obtain additional medical officers from among the graduating medical students. The services expect to take 80 per cent of all medical graduates; the number entering civilian practice will no longer fully replace those who die or retire. Consequently Perrott and Davis predict an annual net loss of about 2,100 for the period following Jan. 1, 1944.

The rate of attrition, the authors predict, will tend to be most severe in the states which were medically poor before the war; these states generally have a high proportion of older graduates and receive an unduly low proportion of new medical graduates. New York, with about 10 per cent of the country's population, receives nearly 18 per cent of the new physicians; Alabama, with about 2 per cent of the population, receives but one third of 1 per cent. Twenty-eight states with a combined population of 54,500,000 are expected to have more than 1,500 persons per physician

1. Perrott, G. St. J., and Davis, B. M.: The War and the Distribution of Physicians, Pub. Health Rep. **58**: 1545 (Oct. 15) 1943.

by Jan. 1, 1944, and seven of these states, with 13,500,000 population, will have more than 2,000. During the past twenty years [2] there has been a trend for the states rich in physicians to become richer and for the states poor in physicians to become poorer, largely because of the preference of new graduates to locate in the states which most encourage medical practice.

The analysis by these officers of the United States Public Health Service serves to indicate certain aspects of the distribution of physicians, to which attention may well be directed in postwar planning for medical services. The situation described need not necessarily demand a revolution in medical education or medical practice for its correction. Improvement in the supply of hospital and laboratory facilities may promptly have a salutary effect.

Current Comment

A REMARKABLE EPIDEMIC OF INFECTIOUS MONONUCLEOSIS

Halcrow, Owen and Rodger [1] describe an outbreak of infectious mononucleosis with unusual features in a hospital and surrounding districts in August 1942. Among a selected population, mainly young soldiers, the main age incidence of the disease concerned those from 20 to 45 years of age; the incubation period seemed to vary from five to ten days. Efforts to trace case to case transmission did not give satisfactory results. On August 5 a woman aged 25 was admitted to the hospital with a typical attack. In a few days 4 other patients were admitted. Soon a physician who had taken care of the first patient, then other members of the medical and surgical staffs and many patients in the hospital contracted the disease. Now a special study was made of all the other patients and members of the medical and nursing staffs, in all 296 persons, of whom 290 presented evidences of infection either clinical (125) or hematoserologic without clinical manifestations (165). The hospital was closed to new patients on August 25. Relatives of the staffs living outside the hospital also presented clinical evidences of mononucleosis, and studies of people in the vicinity revealed many cases of latent or mild infection; but of 20 persons living 35 miles distant, none had clinical or hematoserologic indications of the disease. These and other facts are interpreted as indicating a well localized epidemic of a mild form of mononucleosis of unusual infectivity. White blood counts and tests of the serum for heterophilic antibody (agglutinin for sheep corpuscles) gave results of decisive significance in these studies. In the absence of such tests the cases outside the hospital undoubtedly would have been "regarded as influenza, gastroenteritis, etc." In view of the reports of false positive tests for syphilis in infectious mononucleosis, tests for syphilis were made in many of the cases in the hospital; the results were uniformly negative. The other unusual features of the epidemic are the extensive infection in adults and the frequent hematoserologic evidences of infectious mononucleosis without any of the usual clinical manifestations.

2. Mountin, J. W.; Pennell, E. H., and Nicolay, Virginia: Location and Movement of Physicians, 1923 and 1938: Turnover as a Factor Affecting State Totals, Pub. Health Rep. **57**: 1752 (Nov. 20) 1942.

1. Halcrow, J. P. A.; Owen, L. M., and Rodger, N. O.: Infectious Mononucleosis with an Account of an Epidemic in an E. M. S. Hospital, Brit. M. J. **2**: 443 (Oct. 9) 1943.

DYSGERMINOMA OF THE TESTIS

Dysgerminoma (seminoma) is the most common tumor of the testis. In nature and structure it is a cellular, undifferentiated carcinoma arising from cells in the testicular tubules. The tumor occurs most frequently in the fourth decade; its growth may be rapid or slow. Metastasis, mostly in the abdominoaortic lymph nodes, followed later by generalization, may occur early, sometimes even before the primary growth is detected. The best treatment of testicular cancer at present seems to be orchiectomy as promptly as possible, even if metastasis has occurred, followed by radiotherapy directed against possible or actual metastasis. The effect of proper roentgen treatment on metastases of dysgerminoma may be so prompt as to have diagnostic significance. The results of orchiectomy and radiotherapy in 103 cases of dysgerminoma treated at the Mayo Clinic under fairly uniform conditions are noteworthy.[1] Of the patients who received roentgen treatment "71.1 per cent lived five or more years. Of those patients who did not receive roentgen treatment the survival rate was 58.8 per cent for the same length of time." Other forms of testicular cancer treated in the same general way did not do by far so well. The demonstration that the metastases of this tumor are susceptible to the roentgen ray marks an advance in the radiotherapy of cancer. As in other forms of curable cancer, early diagnosis and prompt treatment in competent hands hold out the best hope for the cure of dysgerminoma of the testis.

BENJAMIN FRANKLIN'S CONTRIBUTION TO MEDICAL SCIENCE

On January 17 the nation will celebrate the 238th anniversary of the birth of Benjamin Franklin. One of the least known facets of Franklin's multisided nature was his interest in medical science. Although lacking formal medical education, Franklin made important investigations on the common cold and on lead poisoning. Franklin was actively interested in inoculation against smallpox, in debunking mesmerism, in optometry, in heart action and in medical instruments. In view of Franklin's activities in so many other fields of knowledge, it is not surprising that he should have been attracted to medicine and that his genius was apparent there as elsewhere.

1. Cabot, Hugh, and Berkson, Joseph: Neoplasms of the Testis; Study of the Results of Orchidectomy, With or Without Irradiation, New England J. Med. **220**: 192 (Feb. 2) 1939. Nash, L. A., and Leddy, E. T.: Seminoma of the Testis from the Standpoint of Roentgen Treatment, Am. J. Roentgenol. **50**: 162 (Aug.) 1943.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeons General of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

ARMY

NEW POLICIES GOVERNING DISCHARGES FROM THE ARMED FORCES

The War Department in regulations dated Dec. 15, 1943 has changed the regulations issued in November 1942 regarding discharges from military service, particularly as they relate to tuberculosis, neuropsychiatric disorders and malaria. The new regulations are as follows:

(1) No individual with a disability incurred in line of duty will be discharged on certificate of disability until definitive treatment has been completed, except those having tuberculosis or neuropsychiatric disorders. Types of cases which should be retained for treatment include those requiring skin graft, bone graft, revision of amputation stumps, closure of colostomy, etc.

(2) Individuals unfit for Army service because of neuropsychiatric disturbances will not be retained for definitive treatment but will be discharged, and arrangements will be made for further care by the Veterans' Administration if such is indicated. Exceptions are those individuals with neuropsychiatric conditions incurred incident to the service who, in the opinion of the medical officer, may within a reasonable period be returned to duty within the continental limits of the United States.

(3) Enlisted personnel developing tuberculosis, unless terminal cases, will be transferred to Veterans' Administration facilities and discharged as soon as a definite diagnosis of tuberculosis and disablement for further military service are determined. Exception to this policy may be made in the case of personnel nearing completion of twenty years' service and noncommissioned officers of the first three grades when the prognosis is favorable for a complete recovery and restoration to duty within one year. Such individuals will be transferred to Fitzsimons General Hospital, or other designated Army hospital, for treatment.

(4) Terminal cases and those in which such transfer will endanger the patient's life or recovery will be retained in the service and hospitalized until death ensues or transfer to a Veterans' Administration facility becomes possible.

(5) Individuals will not be separated from the military service solely because of malaria, in the absence of permanently incapacitating residuals or sequelae such as marked splenomegaly or cachexia. Repeated relapses alone will not constitute a cause for separation.

(6) When the enlisted man is to be separated from the service on certificate of disability for discharge, irrespective of line of duty status, and further hospitalization is necessary, he will be transferred to a Veterans' Administration facility and will be discharged.

MANAGEMENT OF CONVALESCENCE FROM MALARIA

Circular Letter No. 197 concerns the management of convalescence from malaria and was issued by the Office of the Surgeon General, Washington, D. C., December 27. Otherwise healthy persons quickly recover from isolated attacks of malaria, and a convalescent period of two weeks is considered ample during which time sufficient rest, a well planned diet and progressively increasing activity, are usually the only measures necessary. Only when anemia is present is iron required. Patients who have had short intervals between a long series of attacks of malaria sometimes remain depressed and in a debilitated state for an excessively long time. Steps should be taken to aid convalescence in this group of cases. Diets should be planned to be attractive, appetizing and palatable in addition to containing the essential nutrients. Vitamin supplements such as cod liver oil and dried yeast tablets may be taken. The patient should enter a reconditioning program as soon as his condition permits. Activities should be both recreational and useful and should hold the patient's interest and keep him busy, mentally and physically. Boredom or undue fatigue should not be permitted, and the sense of usefulness and responsibility should be aroused and developed.

THE 297TH GENERAL HOSPITAL

The 297th General Hospital, at Banning, Calif., is composed of an affiliated unit from the Cook County Hospital, Chicago. The unit was activated June 10, 1943 at Temple, Texas, arrived at Banning on September 30 and has been established in the theater of operations type buildings with a bed capacity of 1,063. In addition to the usual x-ray service and clinical laboratory facilities the hospital is equipped with a physical therapy department and with basal metabolism and electrocardiographic laboratories. All types of disease or injury incurred by military personnel are admitted to this institution. Col. Francis W. Pruitt is commanding officer, and Major Gordon E. Snyder is executive officer. Other medical officers on the staff are as follows:

MEDICAL SERVICE

Lieut. Col. George F. O'Brien, chief of medical service.	Capt. John L. Bohan.
	Capt. John V. Burke.
Major Max Kaplan, assistant chief of medical service.	Capt. Charles J. Hillenbrand.
	Capt. Lawrence A. Levitin.
Major Melvin L. Afremow.	Capt. Robert O. Levitt.
Major John Ashworth.	Capt. James W. Pick.
Major Paul L. Bedinger.	Capt. Leonard J. Trilling.
Major Emmett D. Wall.	Capt. John S. Zelenik.

SURGICAL SERVICE

Lieut. Col. Chester C. Guy, chief of surgical service.	Capt. Eugene A. Hamilton.
	Capt. Frederick J. Lesemann.
Major Peter A. Nelson, assistant chief of surgical service.	Capt. Francis A. Napolilli.
	Capt. Henry T. Oleck.
Major William C. Beck.	Capt. Carl K. Solander.
Major Wesley A. Gustafson.	Capt. William B. Sullivan.
Major Hampar Kelikian.	Capt. Malcolm C. Todd.
Major Richard A. Perritt.	Capt. Herbert L. Udesky.
Major John J. Walsh.	1st Lieut. Edmund R. Donoghue.
Capt. Nicholas J. Capos.	1st Lieut. William H. Walters.

DENTAL SERVICE

Lieut. Col. Joseph L. Ubl, D. C., chief of dental service.	Capt. John B. Davis, D. C.
	Capt. Wesley M. Kirts, D. C.
Capt. Irwin J. Altheim, D. C.	Capt. Leo Stern, D. C.

LABORATORY SERVICE

Lieut. Col. Alex B. Ragins chief of laboratory service.

X-RAY SERVICE

Major Elbert K. Lewis, chief of x-ray service.	Capt. George W. Smith Jr.

CAPT. MORGAN K. ADAMS RECEIVES SILVER STAR AWARD

Capt. Morgan K. Adams, formerly of San Bernardino, Calif., has been awarded the Silver Star for gallantry in action during August 1943. The citation accompanying the award read as follows: "In the vicinity of . . . , Sicily, Captain Adams, Battalion Surgeon, being summoned to attend wounded soldiers in a forward area, subjected to heavy enemy artillery fire all the while, did, with total disregard for his own personal safety, and with shell fragments flying in his immediate vicinity, go to the aid of wounded, administer aid, and evacuate wounded to the rear. Captain Adams's prompt action was instrumental in saving the lives of many injured and reflects great credit on himself and the military service." Dr. Adams graduated from the College of Medical Evangelists, Loma-Linda, Calif., in 1939 and entered the service Nov. 1, 1940.

TWENTY-EIGHTH CLASS OF MEDICAL ADMINISTRATIVE CORPS OFFICERS

The twenty-eighth class of Medical Administrative Corps Officers at the Officer Candidate School, Camp Barkeley, Texas, graduated on December 29. The course was of four months' duration and included medical administration, supply, organization of the army, sanitation, first aid, chemical warfare, tactics, training and logistics. Each candidate was given the opportunity to prove his ability to command troops during the course, and acting company and platoon officers and noncommissioned officers were chosen from the ranks twice each week. Brig. Gen. Roy C. Heflebower, commandant of the school, delivered the graduating address and Capt. Willard E. Thompson, executive officer, administered the oath of office.

ARMY NEWS BRIEFS

A medical history of the war, recording in photographs and drawings new surgical technic and unusual treatment of disease, is being compiled by members of the Museum and Medical Arts Service of the Army Medical Corps in the European theater of operations.

Sergt. Joseph G. Nalepovic, Silver Spring, Md., recently photographed a simplified method of applying plaster casts in the field. He made a series of twelve pictures in which the various stages of preparing and applying the plaster were demonstrated.

Drawings of a case of coloboma were made by Sergt. Clifton B. Potter, Beverly, Mass.

Capt. Ralph D. Reed, Bethesda, Md., formerly a bacteriologist with the United States Public Health Service, with the aid of three photographers and two medical artists has set up an "art gallery" and dark room. He and his staff take motion pictures of any operation or treatment which is valuable for future study by army doctors. Other members of the unit are Sergt. Robert C. Adams Jr., Lumberton, N. C.; Sergt. Howard L. Cradick, Indianapolis, and Corp. Howard Francis, Ridley Park, Pa.

THE RHOADS GENERAL HOSPITAL

The Rhoads General Hospital, Utica, N. Y., was formally dedicated on Oct. 30, 1943. The dedicatory address was delivered by Hon. James M. Mead, United States Senator of the state of New York. At this ceremony the commanding officer of the Rhoads General Hospital, Col. Austin J. Canning, was awarded the Legion of Merit for exceptionally meritorious service during the attack on Pearl Harbor, Dec. 7, 1941.

The Rhoads General Hospital is the standard cantonment type being used by the army during the present war and was named in honor of the late Col. Thomas Leidy Rhoads, who served with distinction in the Medical Corps of the United States Army for more than thirty years, and who served as the personal physician to Presidents Taft and Wilson. For his service in France during the first world war he was awarded the Distinguished Service Medal.

STUDY REQUIREMENTS OF PERSONNEL FOR ADMISSION INTO THE ARMED FORCES

The following physicians were appointed by the President as members of a commission to study and report on the requirements of personnel for admission into the armed service:

Rear Admiral Ross T. McIntire, Surgeon General of the Navy, Washington, D. C.
Major General Norman Kirk, Surgeon General of the Army, Washington, D. C.
Dr. Alan C. Woods, ophthalmologist in chief, Johns Hopkins Hospital, Baltimore.
Dr. Frank H. Lahey, surgeon in chief, Lahey Clinic, Boston.
Dr. Edward A. Strecker, professor of psychiatry, University of Pennsylvania, West Philadelphia, Pa.

BRIG. GEN. LEON A. FOX AWARDED DISTINGUISHED SERVICE MEDAL

Brig. Gen. Leon A. Fox was awarded the Distinguished Service Medal for "exceptionally meritorious and distinguished service in a position of great responsibility while serving as Health Director for the Caribbean and North Atlantic Engineer Division from Nov. 30, 1940 to Dec. 15, 1942. During this period, in addition to his normal duties as division health director, General Fox was charged with carrying out a health program of great magnitude in connection with construction work in the Caribbean bases, northern ferry routes, ferry routes across Africa, Pan American highway, northwest division, and foreign missions located in Africa, Iran and Iraq. Throughout, General Fox has demonstrated great foresight, energy, organizing ability and inspiring leadership, which have contributed in large part to the successful prosecution of these important projects." Dr. Fox graduated from the University of Cincinnati College of Medicine in 1912, and after serving in the Alabama National Guard he was commissioned in the regular army of the United States. He has also been awarded the Legion of Merit for exceptionally meritorious service as chief health officer, Caribbean Division, Caribbean Defense Command.

MAJOR NATHAN H. WEXLER RECEIVES SOLDIER'S MEDAL

Major Nathan H. Wexler, formerly of Brooklyn and now flight surgeon in a P-38 "The Lightning" fighter unit somewhere in New Guinea, was awarded the Soldier's Medal for "his courageous actions in the caring for wounded personnel during one of the most severe enemy air raids in this theater. This service on his part, in addition to his regular duties of keeping positive check on the physical and mental well-being of every member of his outfit, has earned for him the sincerity of respect of this entire unit." Dr. Wexler graduated from New York University College of Medicine, New York, in 1932 and entered the service in January 1942.

AWARDED LEGION OF MERIT MEDAL

Capt. Oscar L. Entin, formerly of Chicago, was recently awarded the Legion of Merit medal for leading a rescue party through the French Guinea jungle last spring to the wreckage of a plane piloted by Lieut. Tommy Harmon, former All American football player. The citation accompanying the award read as follows: "With no advance notice and less than a half hour wherein to make preparations, Entin accepted the responsibility and carried it through to a successful conclusion, recovering the bodies of all except one member of the airplane's crew and obtaining information helpful in determining the nature of the accident." Dr. Entin graduated from Loyola University School of Medicine, Chicago, in 1936 and entered the service Nov. 20, 1941.

ARMY PERSONAL

The honorary degree of doctor of science was conferred on Brig. Gen. James Stevens Simmons, U. S. Army, chief of the Preventive Medicine Service, Office of the Surgeon General, by the University of Pennsylvania, December 22.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

PHYSICIANS SUBJECT TO EMPLOYMENT STABILIZATION PROGRAM

The War Manpower Commission has recently announced that physicians, dentists, veterinarians, sanitary engineers and nurses who are salaried employees in essential or locally needed activities are hereafter subject to the same provisions of any employment stabilization program as applies to other workers in such activities. Such professional employees may not change their jobs without securing statements of availability from the United States Employment Service or being referred to new jobs by this service. The Employment Service, however, it was emphasized, will make referrals of such employees only after consulting the state chairman of the Procurement and Assignment Service. This procedure, it was explained, will insure referral of these professional workers to jobs in which they can make their most effective contributions to the war effort. On approval of the regional war manpower director, any state director may delegate the duty of referring such employees to new jobs to the state and local offices of the Procurement and Assignment Service.

ARMY AND NAVY DENTAL CORPS

According to C. Willard Camalier, D.D.S., of Washington, D. C., chairman of the American Dental Association's war service committee, 800 more civilian dentists will be drawn from the home front for duty with the Army Dental Corps, and another 1,000 men from dental schools will be commissioned to supplement the present corps of 13,000 dental officers. The Navy has 4,000 dental officers, at least 1 assigned to every ship of cruiser class or larger, and to every tender, hospital ship and transport. Army dentists have been provided with portable equipment, collapsible chairs and foot powered drills and portable sterilizers for use close to combat areas. Army dentists in the service now have a record of 4 million cases admitted to treatment last year. They installed more than 7½ million fillings, and during the month of March 1943 extracted 582,546 teeth. In the same month they replaced 456,783 teeth. In a recent month the Navy Dental Corps installed 50,000 fillings and restorations. Dr. Camalier stated that every effort is being made to insure the dental health of the men in the armed services and to save them pain incident to such infections.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quotas allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, January 1, p. 44)

FLORIDA

Pensacola Hospital, Pensacola. Capacity, 197; admissions, 6,248. Sister Vincent, R.N., Superintendent (interns, residents—mixed).

MICHIGAN

Grace Hospital, Detroit. Capacity, 555; admissions, 16,677. Dr. E. F. Collins, Medical Director (2 interns).

St. Mary's Hospital, Saginaw. Capacity, 387; admissions, 9,429. Sister Electa, R.N., Superintendent (2 interns, 1 resident—mixed).

Saint Joseph's Mercy Hospital, Detroit. Capacity, 225; admissions, 9,500. Sister Mary Camilla, R.N., Superintendent (2 interns and 1 resident—general).

MISSOURI

Christian Hospital, St. Louis. Capacity, 145; admissions, 2,760. Miss Agnes Heman, R.N., Superintendent (residents—mixed).

TEXAS

City-County Hospital, Fort Worth. Capacity, 186; admissions, 5,598. Mr. A. C. Seawell, Administrator (assistant resident).

WISCONSIN

St. Luke's Hospital, Milwaukee. Capacity, 135; admissions, 4,644. Mr. M. E. Knisely, Superintendent (1 intern).

NATIONAL REGISTRATION FOR NURSES POSTPONED

The Directing Board of the Procurement and Assignment Service issued form 328, dated January 1, to state chairmen for nurses, stating that the national registration of nurses planned for the week of February 7 has been postponed indefinitely, owing to circumstances beyond the control of the War Manpower Commission. States are requested not to hold a registration of their own until the status of the national registration is determined. It was also stated that a draft of nurses for military service is not contemplated.

MISCELLANEOUS

MEDICAL AND SURGICAL RELIEF COMMITTEE OF AMERICA

The Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York City, donated during December 1943 medical equipment valued at $1,715 to one crashboat squadron and four motor torpedo boat squadrons. The committee's gift is part of a current project that to date has distributed emergency medical kits to more than 900 sub chasers, destroyer escorts, gunboats, mine sweepers and patrol boats, in addition to supplying battle dressing station equipment to battleships, cruisers and destroyers. A philanthropic organization dedicated to medical aid for the armed and civilian forces of the United Nations, the Medical and Surgical Relief Committee is conducted by a nationwide group of physicians and surgeons, of which Dr. Joseph P. Hoguet is medical director.

INTER-AMERICAN NURSES TRAINING PROGRAM

The United States is cooperating with eighteen of the other American republics in an inter-American health and sanitation program, which has increased the demand for nurses. Training of additional personnel is being carried out mainly under special inter-American cooperative health services organized in the other American republics. Dr. Janet Welch Mackie, who is with the health and sanitation division of the Institute of Inter-American Affairs, Washington, D. C., has recently surveyed the nursing needs of the other Americas. She recently returned from Bolivia, where she assisted the Servicio Cooperativo Inter-Americano de Salud Publica in developing a child health and nurses training program. In reporting on the work, Dr. Mackie said "It is realized not only by the medical staffs of the servicios but by the local medical authorities that one of the greatest handicaps to the development of public health activities is the lack of professionally trained nurses, particularly public health nurses. The servicios, therefore, have attempted to promote nursing education to meet the needs as rapidly as possible. The training of public health nurses is a direct requirement to supply personnel for health centers now being established in many places in Latin America."

A fellowship plan for postgraduate study in the United States in nursing administration, public health and nursing education is another phase of the inter-American program. Seven nurses from Brazil, Bolivia and Peru hold one year nursing fellowships for study in the United States.

WARTIME GRADUATE MEDICAL MEETINGS

Comdr. Harry P. Schenck, 1912 Spruce Street, Philadelphia, will act as national consultant in otolaryngology for the Wartime Graduate Medical Meetings. At present he is working on the selection of men for the National Faculty in this specialty.

ORGANIZATION SECTION

FORTIETH ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The sessions of the Congress on Monday, February 14, will be under the auspices of the Council on Medical Education and Hospitals.

At the morning meeting Dr. Ray Lyman Wilbur will present a report for the Council on Medical Education and Hospitals and will preside over a symposium on problems of postwar medical education. The following topics will be included: "The Medical School Program," "Hospital Training of Medical Graduates," "Readjustments of Returning Medical Officers," "The Distribution of Medical Care" and "Postwar Financing of Higher Education." Participants will include Dr. Harold S. Diehl, dean of the Medical Sciences of the University of Minnesota, Dr. Samuel Soskin, medical director and dean of postgraduate education of the Michael Reese Hospital, Chicago, Dr. Wilburt C. Davison, dean of Duke University School of Medicine, Dr. Samuel Proger, professor of clinical medicine, Tufts College Medical School, and Mr. Fred J. Kelly, chief, Division of Higher Education, of the U. S. Office of Education.

The Monday afternoon session will be devoted to discussions of current wartime problems. The Offices of the Surgeons General will be represented. In addition, "Medical Manpower for Civilians" and "Wartime Graduate Training" will be presented by Dr. Harvey B. Stone, vice chairman, Directing Board, Procurement and Assignment Service, and Comdr. Edward L. Bortz, M.D., chairman, Wartime Graduate Medical Meetings.

On Tuesday, February 15, there will be programs by the Federation of State Medical Boards. The Council on Industrial Health will hold its Annual Congress on Industrial Health on Tuesday and Wednesday, February 15 and 16.

All meetings will be held in the Palmer House in Chicago. It is urged that all who have not made reservations do so at once.

Complete details of all programs will be published shortly in THE JOURNAL.

THE CHICAGO SESSION

Applications for Hotel Reservations

A list of Chicago hotels, together with the rates for rooms, may be found on advertising page 56 of this issue of THE JOURNAL. With the list may be found an application form that may be used to secure reservations through the Subcommittee on Hotels of the Local Committee on Arrangements. This application form may be clipped and, when it is properly filled in, should be sent at once to Dr. Fred H. Muller, Chairman of the Subcommittee on Hotels, Chicago Association of Commerce, 1 North La Salle Street (23d Floor), Chicago.

Those who expect to attend the annual session of the American Medical Association should send in their applications at the earliest possible time. Applicants for reservations are especially requested to include a second and a third choice in order that good accommodations may be secured if the desired reservation cannot be had at the hotel of preference. It will greatly expedite matters if requests for reservations are addressed directly to Dr. Muller.

ANNUAL CONFERENCE OF SECRETARIES AND EDITORS OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

SECOND SESSION, FRIDAY AFTERNOON

(Concluded from page 112)

The Council on Medical Service and Public Relations of the American Medical Association

DR. LOUIS H. BAUER, Hempstead, N. Y.: If there has ever been a council appointed in the American Medical Association that has aroused interest, it is the Council on Medical Service and Public Relations.

The Council has definite functions which were set up in amendments to the By-Laws. The Council has been under considerable handicap in that it cannot function until its policies are adopted and its organization and functioning approved and until it has a permanent secretary. Dr. G. Lombard Kelly, dean of the Medical School of the University of Virginia, is here and will take over on January 1.

The policies of the Council have been sent to the secretaries of all state societies, to editors of all state journals and to the chairmen of all legislative committees. Our function is not just to oppose hostile legislation. I believe that may be an important function but perhaps an incidental one. We hear criticisms of the American Medical Association and of the American system of medical care to the effect that it does not cover all the people. We have been deluged by statistics on the number of people without adequate medical care, most of these statistics coming from sources which made the statistics fit their arguments. Nevertheless I think we are agreed that there are certain people who perhaps do not have adequate medical care. It makes no difference whether there are 1 million or 30 million people without proper medical care, the aim should be that if there is 1 person without proper care we should endeavor to see that that person gets that care.

The ordinary statement we hear made about the Wagner-Murray-Dingell bill is "You oppose this; what have you to offer in place of it?" They would like to have us offer amendments to that bill. This I think would be the wrong thing to do. Those amendments would be introduced, but by the time they got through Congress I am afraid we would not recognize our child, and it would then be our bill. We must not be stampeded into offering any set plan. We do have to take time and pains to point out what American medicine has to offer in place of compulsory sickness insurance. To my mind the most important function of the Council is to study and assess all the various systems of medical care which have been proposed and make an effort to evolve something or several things, possibly, that will meet the situation over the country.

I think every member of the Council is much impressed—in fact, I might say almost overwhelmed—with the magnitude of the task which is before us. Every one is taking it in the most conscientious manner. How much we shall be able to accomplish I do not know. If you are expecting us to become ultraconservative you will be disappointed. If, on the other hand, you expect us to become ultraradical you are going to be disappointed. If you expect us to work miracles overnight you are going to be disappointed, because none of us are miracle workers.

We have approved group hospital insurance. It is estimated that from 12 to 15 million people in the United States have group hospital insurance. Well, that is only about 10 per cent of the population of the United States. I think that is something that must be furthered, and it is up to the doctors to help further it.

We have approved the principle of voluntary medical expense insurance. There are a number of plans which are in vogue, in operation over the country. I believe I am safe in saying that not one of them has been a 100 per cent success. That does not mean that there is anything wrong with the principle. It may mean that we have not yet worked out the proper formula, and that will take time and study. I understand it took forty years to establish life insurance. Nobody would doubt the success of life insurance at present. I do not mean to imply that it is going to take us forty years to work out

voluntary expense insurance, but it is going to take more than two or three years to do it. I think the medical profession itself, the individual doctor, has been a little laggard in his efforts to further plans which have been adopted in his own state. It would be a mistake to think that we can take one plan and make it fit the whole United States. One of the arguments which we have had against compulsory health insurance as well as many other arguments is that we believe no one system is suited to every section and every class of people in the United States; if that is true of the compulsory, it certainly is equally true of the voluntary.

There is a good deal of interest now in industrial medicine. There have been various industrial plans evolved. One of those that we have heard most about is the Kaiser plan. Mr. Kaiser thinks that his plan is the panacea. I asked him how he thought it was going to work in a rural area with perhaps a population of five persons per square mile, and he thinks it will work, but he did not say how. He said he was going to take it into the rural districts of California and find out. I say let him do it and see what he does find out. There were some good points about Mr. Kaiser's plan and others that are not so good. I question in my own mind if it is the answer. In fact, I am sure it is not the answer. It may be the answer for certain mushroom industrial populations such as it is in effect for at the present time.

We have heard about diagnostic centers; we have heard about state aid in reducing the cost of more expensive therapeutic agents. All those things are matters for study and perhaps solution. When we get through I believe we shall find we shall not have one answer but several answers. What will work in California will not necessarily work in Massachusetts, and what will work in an industrial area will not necessarily work in an agricultural area. We may have to have several plans before we get through. The only way you can work out a satisfactory plan for any area is by experiment and gradual evolution and modification. The Council is not in favor of anything revolutionary. We do hope by the time our job is done, if it ever is, and if not some one else will take it over, that we can offer a system of medical care that is in accord with the American tradition of free enterprise and the American standards of excellent medical care.

The Council has been organized with a chairman, a vice chairman and a full time secretary. An executive committee of three has been created, which includes the chairman, the Council member of the Board of Trustees and a third member elected. The executive committee will have such duties as may be delegated to it by the Council itself.

In order to get all the information necessary to study various plans of medical care, and to know what is being proposed in the legislative world, the Council must have certain sources of information. The American Medical Association has had sources of information, and those are being amplified and extended. We shall have perhaps more opportunity in the future to know just what is going on. But you state secretaries have also got to serve as sources of information, particularly with reference to the various plans of medical care which are going on in your vicinity. We feel we have to maintain close contact with the state societies and the county societies. We have asked each state secretary to have the proper body in his organization designate an already existing committee, or in its judgment appoint a new committee, to act in collaboration with the Council in carrying out our activities. Those letters went to every state society; at the present time we have had replies from nineteen. Some of the replies merely acknowledged receipt; some designated committees; some went so far as to give their whole county setup as to how they wanted us to function with the county. One state has resurrected a former system which they had in 1934-1935 and has gone into it with a great deal of detail. That is the state of Indiana. They have here today an outline of their plan. The Council has not yet seen it. We are going to study it tomorrow at our meeting.

The By-Laws stated that we should establish collaboration with the Bureau of Medical Economics, the Department of Public Relations and the Bureau of Legal Medicine and Legislation. Those contacts have been made. Briefly, the Bureau of Medical Economics has been asked and has expressed its willingness to do the research on many of the economic problems necessary for Council study. That bureau is well equipped to carry on that research. You state secretaries have a job to do in seeing that the Bureau of Medical Economics or our Council is kept informed of what the status is of the medical care situation in your locality. We expect to establish joint bulletins with the Bureau of Legal Medicine and Legislation on legislative matters and to effect a wider distribution and, if possible, a little more frequent distribution of those bulletins, as well as bulletins of our own. We want these to reach the profession. We have also established relations with the Department of Public Relations. We are going to utilize the sources of information which that department has. Our whole effort is to avoid overlapping of the functions of these various bureaus. There is the most cordial relationship among all the bureaus here in the headquarters office, they are out not to obstruct one another but to help one another. We can make use of the various sources of information which may be established in various places. The secretary is being authorized to travel wherever necessary, in the judgment of the Council, where he can make contact with the various agencies and transmit the information from the Council and bring back information to us.

One of our important functions is to disseminate information that we have accumulated. That can be done, of course, through THE JOURNAL, *Hygeia*, the various state journals and those counties that have publications; and of course there will be a certain amount of material which should reach the public. That, I believe, to a great extent will be more effective when it is issued locally. Things which are issued nationally get through the various large press organizations but are apt to be pretty much abbreviated by the time they reach the local papers. A great deal can be done by the local units in furthering publicity of any of our aims.

I believe we have to realize that we must sell ourselves to the public as well as to the medical profession. The public is not aware altogether of what the American Medical Association stands for. As Dr. Kretschmer brought out, there is some vocal disapproval of the American Medical Association, but by large the Association stands pretty well. I believe we should endeavor to combat propaganda which is aimed at us and which is distinctly unfair and based on false premises. That can be done only by contacts with the individual physicians, with the individual organizations in their localities and their individual patients. That requires time on the part of the doctor. It is our feeling that this council is merely the center from which information will go out and to which it will return, but that same sort of thing must be done in each state and each county. Each county society must be a bureau of information for the public as to what our principles are and what we actually stand for.

DISCUSSION

DR. R. L. SENSENICH, South Bend, Ind.: The purpose of this method of public relations is "by means of frank discussion, to establish with the groups contacted that friendly relationship which exists between patient and physician in the home, to the end that the best measures may be instituted for the solution of their mutual problems. It is desirable that these friendly contacts be maintained and be not limited to the consideration of possible impending harmful legislation. In times of continuing social adjustments the value of the understanding and support of a friendly lay public cannot be overestimated." That was the background of the Indiana plan. First, it was built on the premise that an effective physician to public contact was lacking. Second, the physician was not sufficiently informed. I regret to say that I think that is true even today. Third, some appraisal was needed covering the whole problem, both from the standpoint of the physician and from the standpoint of the public: What the public really lacked in medical care, if anything, or what it thought it lacked and what it should have and how it could be attained acceptably to both. Fourth, this method would provide a sort of perpetual inventory through which we would know the attitude of those who would influence legislation, not alone individuals but groups, the employees and the employer groups, and all the other social groups. Fifth, it would include the medical societies and their public relations. Sixth, with the better informed profession

more individuals will be in position to lead, to mold public opinion and help in the direction of the development of such plans as are necessary to meet the needs. Seventh, the council now replaces the legislative committee in the plan or organization. Eighth, the project to a great extent should be that of state and county societies. Ninth, the basic policies must be fixed by the House of Delegates of the American Medical Association. Tenth, plans of action should be formed at the national level at this time by this newly created council on which has been placed so much responsibility and from which we expect so much. Eleventh, each state and each county should be permitted the widest lattitude in the matter of its organization, provided it proves that in the particular area it is the best method of approach to the public relations problem involved. Twelfth, the plan is workable.

DR. CARL H. MCCASKEY, Indianapolis, President Indiana State Medical Association: Dr. Sensenich has given you the history, the background, the reasons for the adoption of the Indiana plan by organizations. What are some of our contacts in Indiana? First, we have this contact with the Indiana Chamber of Commerce. We have close contact in Indiana, through this working plan, with the Hospital Association. We have close contact with the insurance organizations of the state, the Pharmaceutical Association and certain labor groups which are particularly opposed to the plan set out in the Wagner bill. We have the support of the Manufacturers' Association in Indiana, through working out with them of this plan which has been presented to you. This plan gets down to so-called grass roots of the organization of medicine. It gets down to the man who has to buy medical service or who has to be given medical service. You have a chance to educate the public through this plan on the things that American medicine is doing for it.

DR. G. LOMBARD KELLY, Augusta, Ga.: I agree with Dr. Bauer in regard to the stupendous task this committee has. I feel with awe the undertaking ahead. Only my intense interest in organized medicine, selling the medical profession to the public, persuades me to take on the work of secretary of this committee. I would also like to agree with Dr. Bauer on the need of the cooperation from the secretaries and editors, and the medical profession as a whole.

DR. W. H. TOULSON, Baltimore: I would like to ask the committee what attitude it would take toward the National Physicians Committee.

DR. BAUER: The attitude of the committee on that question really came from the House of Delegates. In the policies of the Council which were sent out a statement was placed in them relative to it: "There is no official affiliation between the American Medical Association and the National Physicians Committee. However, since it is the purpose of the National Physicians Committee to enlighten the public concerning contributions which American medicine has made and is making in behalf of the individual and the nation as a whole, it is the opinion of the Council and the medical profession that we will support the activities of the National Physicians Committee and other organizations of like aim." We welcome any help any one can give us. We had statements of policy relative to the Wagner bill from other organizations beside the National Physicians Committee and we welcome their support also. The American Bar Association has come out against it. There are many prominent newspapers in the country which have come out against it. Various church organizations have come out against it. The monthly or weekly organs of the Methodist Church and of the Catholic Church have both come out strongly against it.

DR. VINCENT T. WILLIAMS, Kansas City, Mo.: Is it not true that if you want to reach the grass roots it might be as a matter of constructive suggestion that these folks who work on county bulletins be apprised of what your committee or council is doing, as rapidly as possible?

DR. BAUER: That is true.

DR. WILLIAMS: I believe you made the statement that your council had come out formally endorsing certain prepared plans?

DR. BAUER: No, I did not say that. I said that the council had under consideration these various things and that I thought it would be a mistake for the Council to endorse any plan at the present time, because I don't know of any plan which is 100 per cent satisfactory; but I do think we should study all plans and see if we could evolve something that would be satisfactory. We haven't endorsed any of them as yet.

DR. WILLIAMS: Was it the principle of prepared plans that your Council did endorse?

DR. BAUER: We have not endorsed anything other than what the American Medical Association has already endorsed, namely, the principle of voluntary insurance.

DR. WILLIAMS: May I ask, then, as a constructive suggestion, that the county societies (I believe there are only about one hundred that have bulletins) be put on your mailing list to get some of this information.

DR. BAUER: We have asked all state secretaries to send us the list of any county societies in their state which they wish placed on our mailing list direct and have asked them either to forward the material which we send out to every county society or, if they prefer, to send us the names and addresses of the county societies so that we can make direct contact with them. Some states have already sent in that information; some of them have asked us to make direct contact with the societies; others have asked us to send material so they can send it out. We feel that is a function of the state society to decide how it wants to do it. We are willing to put anybody on the mailing list who is interested. We just want to be sure you are interested. There is no use sending material to a county society if it does not have any active committee. We are only too delighted to place any county society which is interested on our mailing list. That is why we are anxious to get back the replies from these other thirty states, so we can get our mailing list up to date and so everything we send out will reach everybody who is interested in it. It will cover not only state secretaries and other such county secretaries as request it but the legislative committees and the editors of all the state journals, and anyone else who wants to be put on that list can be included.

DR. GEORGE H. KRESS, San Francisco: On October 10 the council of the California Medical Association voted $5,000 to make a spot survey of California to find out what, if anything, is wrong with medicine. If the survey justifies, the council contemplates the expenditure of some $30,000 more to see what can be done to rectify conditions.

Reference was made to a lobby in Washington. The council of the California Medical Association saw fit to approve the plan of sending the secretary of the California Public Health League to Washington, where he is now, to make more intimate contacts with the congressmen from California so that the California Medical Association would be in a better position to advocate those legitimate propositions concerning the public health and medicine that may be deemed worthy of support.

Reference was made to the Kaiser plan. You may be interested somewhat in having a brief reference thereto, because many of you are not on the ground and are not familiar with the situation. Some of you may have read Paul deKruif's book "Kaiser Wakes the Doctors." In the Kaiser Foundation plan they did deal with almost 100,000 men. Let's take the figure of 100,000, because figures are so massive when you transpose them into money values that you can make your own deductions and still see why the Kaiser plan in a limited geographic area in the county of Alameda can do the things that presumably have been accomplished. First, the 100,000 men are comparatively good risks, and at $2 a month per employee, or $200,000 a month, you have an income of $2,400,000 a year. Industrial injuries are cared for and paid for from the State Industrial Fund of California to the extent of 40 per cent; add another $1,000,000. You have then for the Permanente Foundation approximately $2,000,000 to $3,000,000. No wonder that Mr. Kaiser, under those conditions, with practically no acquisition expense in the securing of his risks, and with no medical care to families, can set aside $25,000 to $50,000 a month in

paying off the expenses incident to the erection of his hospital in the city of Oakland. But when Mr. Kaiser uses that as a basis of analogy and proceeds to say to the people of the United States that on 7 cents a day he can give treatment to families as well as to employees (instead of dealing with one employer with deductions at the source and with practically no acquisition expense, and with perhaps whatever acquisition expense is involved coming from federal funds, and all that done in limited areas instead of over a massive state such as California and dealing with many employers with all kinds of employees); I say that when he tells the people of the United States and the medical profession that he has found the solution to the problem of adequate medical care he is guilty of erroneous thinking and conclusions, as must be evident to any thinking person when the situation is analyzed. Those of you who are interested should read the October issue of *California and Western Medicine*, in which there is a tear-down of Paul deKruif's book and in which the inside story is told. You can get the real facts from the book review that is there given, with the excerpts and comments.

DR. BAUER: That is exactly the type of information which the Council wants. Kaiser thinks his plan is a panacea, and we question it very much. It may be an answer in certain situations, but does it answer for the whole United States? The fact that the Kaiser plan has had such national prominence makes it necessary that we study it and give information to show why it will not work; we can't just ignore it. The people in California are peculiarly well situated to give us information, and we are going to expect California to give us that information. That is why I say this is going to be a two way affair. You people who are on the ground and who are observing the functions of these plans can give us information which we must have before we can stamp any plan as being good, bad or indifferent.

DR. OLIN WEST, Chicago: There is the most encouraging thing I have seen in fifteen years [referring to the Indiana Society's brochure]. I have not had time to read it or study it. I don't know whether I would agree with everything in it or not, but those of you who have a copy of it will see that it is published by the Indiana State Chamber of Commerce. It is well presented. I presume it is being distributed in considerable numbers. This is the first time that I have seen any definite evidence that they have really become interested and are willing to try to help do the job that has got to be done. We made a long, persistent and intensive effort to get organizations of this kind interested in the fact that the first introductory steps toward efforts to establish socialization of medicine, regimentation of the medical profession and political control of medicine in this country indicated that the next step would be to socialize something else, and the next step something else, and to bring about a complete system of federally controlled life in the United States. I am encouraged that we are receiving inquiries here from commercial organizations, from industrial organizations, from civic clubs, from various groups, not only of physicians but of laymen and lay women who are working to see that this legislation, which has been introduced, is defeated. There is a growing interest on the part of men who are interested primarily in business. They are beginning to realize that in every instance in which socialization has been effected in a nation the first step has been to take up some proposal that makes a strong, popular and an even more strong purely sentimental appeal. It has been true in practically every country that now has a system of compulsory sickness insurance. They always start with the mother and the baby, or with the poor, downtrodden and underprivileged. We made a very earnest effort to interest financial groups, commercial groups, organized groups of industrialists and others. They said that was not their function. The work the medical profession has been doing in trying to stave off socialization not only of medicine but complete socialization is now beginning to seep into the minds of business men and of others who prefer to lead their own lives under democratic principles rather than to be politically dominated in every movement they make, from the cradle to the grave.

FRIDAY, NOVEMBER 20—MORNING

DR. JOHN S. BOUSLOG, Denver, Presiding

A paper on "Medical Legislation in Congress," was presented by Mr. J. W. Holloway Jr., Director of the Bureau of Legal Medicine and Legislation of the American Medical Association. He analyzed legislation pending at the time.

DISCUSSION

DR. STANLEY B. WELD, Hartford, Conn.: Has the Barden-LaFollette bill any relationship to the present emergency or is it a permanent affair?

MR. HOLLOWAY: It is permanent.

DR. WELD: Is there being any difficulty found in financing the relocation of physicians, such as you implied there might be, in your remarks?

MR. HOLLOWAY: I did not imply there was. I simply said that this proposal had been made to finance them.

THE CHAIRMAN: There is a lot of legislation in the Congress that we know nothing about.

DR. WALLER S. LEATHERS, Nashville, Tenn.: May I make this statement, Mr. Chairman: I think Mr. Holloway has presented a clear and helpful discussion about this legislation. Any one who has any idea of legislation realizes that the way in which he has done it shows that he is intimately associated with it and has undoubtedly followed the program remarkably well.

THE CHAIRMAN: I agree with you heartily.

The Federal Plan for Providing Obstetric and Pediatric Care for Wives and Infants of Service Men

DR. L. FERNALD FOSTER, Bay City, Mich.: At this time any presentation relative to the U. S. Children's Bureau plan of providing obstetric and pediatric care for the wives and infants of service men can be only one of reporting observations and views as gathered from various physicians throughout the country. Already each state association probably has taken some action relative to this subject, either having accepted the plan as presented, rejected it in toto or accepted it with modifications. A discussion of the plan a year ago, when some uniformity of action might have been developed, would probably have been more apropos. The history and background of the Children's Bureau plan, including the action of the 1943 American Medical Association House of Delegates, is well known and needs no reiteration today. The war emergency offered a good opportunity for the proponents of the present program to utilize the great interest appeal of maternal and child health for the families of service men. Is this project, embracing a small segment of medical practice, being utilized as a trial balloon for complete federalization of medical practice? Are the proponents of a plan of complete federalized medical care watching the attitude of the medical profession toward this plan in order to determine what their activities shall be, either to make bolder strides toward their totalitarian objective or to retreat from their grandiose scheme?

Many physicians question the sincerity of purpose in this program. In the first place they are suspicious of this measure, which was enacted not as an independent legislative proposal but as an amendment slipped into an important appropriation act. They further suspect sharp practice in the wholesale premature publicizing of the program to the thousands of service men in camps before the matter was even presented to the necessary purveyors of the services, the doctors. Physicians resent the modern method of "legislation by edict" as exemplified in the ruling by the Children's Bureau that payments cannot be made to the service men's wives but shall be made direct to physicians. Many physicians say that the published reports of approval by forty-five states are misleading in that the plan approved was in many instances that of the state health department and not of the medical profession of the state. Many state medical societies have not given approval, and after all it is the private practitioner who must do the work. These physicians feel that no program, no matter how worthy, can be successful if founded on bad faith and lack of mutual trust.

The main objection to the program is expressed in the American Medical Association resolution: payment direct to doctors of medicine. Every one, including the dependents themselves, would favor a program based on allotments to service men's dependents. There appears to be nothing in the law (the brief amendment to the appropriation act) that specifically prohibits payments to service men's families. The present refusal of the Children's Bureau to try such an arrangement is based on a mere legal opinion. In one Midwestern state the program had been accepted and was working well because opportunity was given the doctors to make supplementary arrangements. When a representative of the Children's Bureau heard of these arrangements, the plan was changed immediately and the possibility of supplementary arrangements was deleted. That state has since given its disapproval to the plan.

Further serious objection lies in the fact that the plan does not take into consideration obstetric complications, emergencies and compensation commensurate with care demanding special technical skill. Such lack of consideration would tend to lower the quality of care—which is one of the most serious objections to all schemes of federalized medicine. Considerable objection has also been made to the very meager provisions for pediatric services. The actual need for such a broad program as the present project promises to be is questionable. However, the widespread publicity given the plan has definitely stimulated a big demand. The bait of "something for nothing" is always alluring to the unthinking populace. It is incomprehensible to the average American that his wife and children's free obstetric and pediatric care may lead to complete regimentation of medicine, which in itself may be the entering wedge for the general socialization of the country. Experience has shown in many cases that where the doctor has had the time to explain the implications of this scheme to his patients they prefer to remain as private patients instead of becoming charges of the federal government.

Doctors in states which have refused to approve the plan in its present form are concerned over the position of those state medical associations which have endorsed officially the federal program of obstetric and pediatric care. They have established a precedent which is not consistent with their general opposition to complete state medicine. This action by state associations is being utilized to good advantage by representatives of the Children's Bureau in their attempts to influence other states to adopt the program. It has helped to make the stand of some state associations extremely difficult and almost hopeless.

In my own state the House of Delegates took the following action in September 1943:

(*a*) "Because this plan is a form of state medicine the Michigan State Medical Society refuses to cooperate in any of the provisions of the plan in its present form.

(*b*) "That until satisfactory adjustments in the program can be made the members of the Michigan State Medical Society are requested to give professional care gratis in order that the wives and children of servicemen may obtain hospital care."

It has been recommended to the U. S. Children's Bureau that payments be made to doctors of medicine through Michigan Medical Service, our voluntary group medical care plan. A poll of our membership has been taken and it indicates that such an arrangement is approved by a great plurality. A special committee is handling negotiations with the Children's Bureau and Michigan Medical Service at the present time.

The feeling of the medical men in Michigan, where Michigan Medical Service covers the state and where, through Michigan Hospital Service, it invokes the services of 98 per cent of our hospitals, and where Michigan Medical Service is the plan of the profession itself, the profession would be willing to have this service purchased; since we are told that the funds must be used to purchase the services, the profession seems willing to have it purchased through their own organization if that will solve the problem, which it probably would do in Michigan if such a plan were acceptable by the Children's Bureau.

Pending the outcome of these negotiations and being cognizant of the many local problems confronting the profession throughout the state, the executive committee of our council has registered the following opinion:

1. An unalterable disapproval of the plan in its present form.

2. That the members individually might properly—as they deem fit—(*a*) sign the blanks to provide hospital service, giving the professional care gratis, (*b*) sign the blanks and accept the government fee or (*c*) decline to participate in the program. In any event the Children's Bureau plan has been so developed, timed and publicized and so administered that the medical profession in almost any position it takes has been placed definitely on the defensive. It must get on the offensive.

In conclusion, the whole subject might be summarized as follows:

1. Every one is desirous of having quality medical service accorded the dependents of our fighting men.

2. The program of the Children's Bureau is definitely one of federalized or state medicine with direct subsidization of physicians.

3. It does not insure quality service.

4. Federal health and medical projects are seldom discontinued after an emergency—this program is probably no exception.

5. The plan gives no assurance of a maintenance of reasonable fees (even if the present fees were considered reasonable).

6. The program is not limited to doctors of medicine.

7. The program could be used as a precedent to extend federal medical care to all branches of medicine and surgery.

8. Complete refusal to cooperate in the plan, even with an offer to render service gratis, might well evoke a criticism of the medical profession.

9. Official acceptance of the plan is a definite approval of federalized medicine.

10. Where participation in the plan seems necessary, might it not be better to make such a participation on an individual basis—not on a basis of official approval by state associations?

DISCUSSION

DR. EDWIN F. DAILY, Washington, D. C.: Dr. Foster states that he dislikes the Children's Bureau "edict" that payments cannot be made to the wives of service men. That is not an edict of the Children's Bureau. The law, as it was passed, was given to the solicitor of the Department of Labor, and we asked his interpretation as to its intent in this respect: At that time we were told that the wording of the act was "to provide medical, nursing and hospital care" and that it was not the intent of Congress that it be a benefit payment but that the funds were to be used actually to purchase medical and hospital care. The solicitor of the U. S. Department of Labor in a formal opinion dated Dec. 12, 1943 advised as follows: "It is my opinion that the chief of the Children's Bureau has no authority to approve state plans which provide cash allowances to the wives of enlisted men in lieu of the existing method of making payment, through the state health agencies, directly to cooperating practitioners and hospitals."

Further, when additional appropriations were being considered by Congress within the past two or three months an amendment was proposed by a Congressman specifically to provide for a benefit payment instead of purchasing care directly from the doctors and the hospitals. This amendment was defeated, as mentioned by Mr. Holloway. We are now acting in accordance with the law, and I think the position of the Children's Bureau is quite clear.

One minor point in Dr. Foster's statement: He speaks of the director of maternal and child health in the state department of health as being the representative of the Children's Bureau. The directors of maternal and child health in a state are employees of the state health department and are in no way responsible to the Children's Bureau. We have no employees of the Children's Bureau who are working in the states. We have a small staff of regional consultants who act in an advisory capacity.

Dr. Foster made a statement about a physician from Iowa, a member of our advisory committee, who made a statement before the Michigan State Medical Society concerning supplementary payments to the physicians. I had a letter from Dr. Plass in Iowa regretting that he had been misinformed when he went to Michigan, and when he returned to Iowa he found the statement he made was incorrect.

The statement was made here that the plan does not take into consideration any emergencies or any need for any other conditions that may arise during pregnancy. All state plans do provide for medical consultation, and general practitioners can call in a consultant in any specialty whatsoever when one is needed. If he needs a surgeon for an appendectomy, if a general practitioner needs an obstetrician to come in and advise and assist him, all of the plans make provision for any service that the individual needs. If the patient needs hospital care for any complication during pregnancy, provision is made for that. The plan provides for any type of service the individual needs, of course, that is, when that service is or can be made available within the community.

A few more words about the benefit payment: There has been an enormous amount of discussion pro and con as to whether or not it should be a benefit payment to the families or whether the plan should be used to purchase care directly from the doctors and the hospitals.

I think it should be understood that a benefit payment would be unquestionably on a uniform basis, a certain amount—$50, $75 or $100—whatever might be established by Congress as a uniform benefit. One Congressman estimated that the cost of the program would be at least double what it is at the present time since every enlisted man's wife who is pregnant or who has a child under 1 year of age would undoubtedly request and receive the benefit. At present we estimate that only approximately half of the enlisted men's wives who might request this care are applying for such care under the program.

A benefit plan would not take into consideration the great variation in need of individual maternity patients for care. All the states have found that the cost of care between individual cases varies tremendously. Here is Mrs. Jones, who will require perhaps two or three weeks of hospital care in the middle of her pregnancy, for some complication. Perhaps there will be need for prolonged hospital care at the time of childbirth. Those are provided for in the plan. Perhaps consultation is needed, which may run the cost up quite a bit for a certain case. Or maybe the wife has a prematurely born infant who has to stay in the hospital for six or seven weeks. Those variations can be taken into consideration under the present plan and are being taken into consideration. On a benefit payment basis that would not be true. Under a benefit payment plan there could be no assurance that the funds paid to the individual would be used for medical and hospital care; there would be no assurance that the doctors would be paid or that the hospitals would be paid.

All the medical service plans that I know of in this country which are sponsored by the state medical societies provide for payments directly to the doctor, and under the hospital service plans they provide for payments to the hospital. I believe in the history of that type of medical or hospital service plan in this country the principle of payment of a benefit has long been discarded as not practical. Perhaps some of those present here who are familiar with those plans will verify that statement or correct it. In studying some of these plans recently I find that the medical service plans of the state medical societies usually set an annual income of $2,000, $2,400 or $3,000, or something like that for the low income group who are covered by the plans. They establish a fixed payment to physicians which ranges between $40 and $60 for maternity care; that constitutes the sole payment to doctors for the service they rendered under the plan, which I believe is somewhat comparable to the provision that has been made under the E. M. I. C. program.

DR. W. W. BAUER, Chicago: I have been a member of the Advisory Committee to the United States Children's Bureau since the committee was established. I should like to make it clear just what the status is of that advisory committee. As its name indicates, it is advisory and nothing more. The medical profession, that is, the American Medical Association, was not asked to appoint a representative. There was correspondence requesting the Association to suggest a member for the Advisory Committee, but not as an official representative of the Association. The Secretary of Labor invited me to be a member. I submitted that invitation to the Board of Trustees, and the Board of Trustees approved acceptance of it. That invitation has twice been renewed, each time for a three year period, and each time has been accepted in the same manner. This committee has no authority whatsoever. The decision as to the policies of the Children's Bureau rests with the bureau and can be influenced by the committee only as far as the Children's Bureau finds the advice of the committee acceptable. That fact has given rise to an increasing feeling among the members of the committee that there is something inadequate in the relationship. At the last meeting of the U. S. Children's Bureau Advisory Committee, which was held in Washington on October 21, that feeling was definitely expressed by members of the committee in a statement in the more or less informal discussion, to the effect that the representatives on the committee did not truly represent the practicing physician.

I quite frankly admitted that as one who has not practiced medicine for twenty years I was perhaps somewhat remote from the problems of the practicing physician. Other medical representatives on the committee, including full time professors in medical schools and men and women engaged in public health work, freely acknowledged the same. Out of that discussion there came a recommendation from the Advisory Committee to the Children's Bureau that additional representatives be invited and that these representatives be men or women actually in the practice of medicine and acquainted with its problems. This has since been done (THE JOURNAL, January 1, p. 46).

I presented at this advisory committee meeting the resolution of the House of Delegates calling for direct payments to the recipients of medical care and permitting them to make their own arrangements. Many of the members of the committee, particularly those engaged in social work, disagreed with me and presented their arguments to the contrary much as Dr. Daily has presented them, to the effect that this method has been found unsatisfactory, that there is no assurance that the money will be used for the purposes intended, and so on.

The Children's Bureau, as Dr. Daily has stated here, took the position that it is obligated by implication, at least, by the defeat of that amendment to which Mr. Holloway referred, to furnish medical care and to pay the doctor direct, and not to follow the recommendations of the American Medical Association House of Delegates. There was no point in any further debate because we had stated our case; to all intents and purposes it had been rejected, and it stands rejected today.

The other principal thing that came out of that advisory committee meeting, which by the way was a very long, intense and spirited meeting, was the discussion of this question as to whether the act intended to provide maternity care for the wives of service men or to provide medical care for the wives of service men when pregnant, those being two distinct things. I gathered the impression that the interpretation of the officials of the Children's Bureau was that these wives, when pregnant, should have what care they needed, obstetric or other. There was some discussion of the question of dental care, and that was excluded because of the insufficiency of funds, although it was stated as a desirable objective.

On this question of whether women were to have all medical care during pregnancy, or maternity care under this plan, plus making their own arrangements for any additional care, there was quite a long discussion, and a compromise recommendation was arrived at. It was not wholly satisfactory to anybody, I believe, but it appeared to be the best on which agreement could be reached at that time. It was recommended to the Children's Bureau that for intercurrent disease occurring during the pregnancy the physician was to receive additional compensation under certain conditions, the principal one being that the disease must be of a duration longer than seven days. That was an administrative problem, some arbitrary line having to be drawn somewhere. As I say, that was a compromise that was not wholly satisfactory to anybody.

Dr. Foster raised the point that this program is a precedent. I don't think there is the slightest doubt of that. I have had many frank conversations and discussions both with Dr. Eliot and Dr. Daily. Dr. Eliot told me at Washington not so long ago, when I said that the doctors would be better satisfied to cooperate in this plan if they could be assured that it is not the opening wedge for broader plans, "I don't think they can have any such assurance." She may have been expressing her own opinion, or she may have been expressing her estimate of the trend of events.

The American Public Health Association had a meeting in New York early in October, this program being the subject of one session, at which time it was presented by a director of child health and maternal health for a Southern state—I think it was North Carolina—and by a county health officer in that state actually administering the plan, and by Dr. Eliot. Dr. Eliot's discussion was purely a technical discussion of administrative problems and difficulties.

The county health officer emphasized several times that this is a plan for the duration. So also did the state maternal and child health director. The first discusser was Dr. James MacIntosh, a Scottish physician, who opened his discussion with this remark: "I have heard it emphasized here twice that this is a program for the duration." Then he smiled and said "Is it, or have you got your foot in the door?" I think he went straight to the heart of the question.

This program began from small beginnings. Under the general social security grants the Children's Bureau and the Washington State Health Department started this program. From there it went to other states and finally was extended, as Mr. Holloway has pointed out, to almost all the states. Now it is established in practically all the states. Where it will go from here I do not believe we have any assurance, but I think it is logical to assume that if the officials of the Children's Bureau are committed to the conviction that this is a program that they ought to further they will carry it as far as they can get authorization and funds to carry it and will extend it from there. That would be the only logical program that we could impute to individuals who are acting sincerely under their convictions.

As a member of the Children's Bureau committee, I have objected on a number of occasions to the officials of the Children's Bureau because they have not laid their plans before the medical profession. This meeting of October 21 is being reported by the Children's Bureau. I received the report yesterday. It will be published soon in an issue of THE JOURNAL. Previous meetings, in spite of my repeated requests, have not been adequately reported. As an invited member of that committee I cannot publicize those meetings on my own initiative. The announcements should come from the Children's Bureau. I have asked again and again that they be furnished. Some of them have been furnished, but they have not been furnished in nearly the detail or nearly as early as I think would have been advisable for the information of the medical profession.

Let me emphasize again that we on the Advisory Committee are purely advisory. In fact, at the first meeting of the Advisory Committee before which this program was discussed, we were requested to discuss it, to present our individual opinions, but not to offer any resolutions of the committee or any recommendations of the committee as a whole. I don't know why that request was made; I merely state the fact. And of course that was then all that could be done.

One thing which impressed me in the discussions, both in the Advisory Committee, in private conversation with Dr. Daily and Dr. Eliot, and with physicians and secretaries of medical societies, is the enormous complexity of the administration of even a fractional medical care plan like this. What must then be the complexities and the difficulties that would be involved in a complete federalization of medical care?

DR. LOUIS H. BAUER, Hempstead, N. Y.: Dr. Dailey, I think, heard the resolution which was read here from the American Academy of Pediatricians. I should like to know what the attitude of the Children's Bureau would be toward such a conference between the officials of the Children's Bureau and the various medical organizations mentioned in that resolution and whether they would come into it with an open mind.

DR. DAILY: I am sorry I can't answer that question. That resolution had not been received in Washington when I left Washington.

DR. M. PIERCE RUCKER, Richmond, Va.: I am beginning to believe that I can't understand the English language. We are told that services cannot be paid for until the application has been signed and approved, and we are led to believe that the service is needed and desired by the service men's wives. I can interpret acts, and I thought it might be interesting for an obstetrician to tell a few experiences he has had with this plan. In the first place, I would like to preface my remarks by saying that I deem it a privilege to attend the wife of any service man. I have never turned one down, and so far I can furnish free hospitalization, so it will not cost the service man's wife a cent, if it is necessary. I don't like to be put in the position of refusing to attend service men's wives because I don't like the plan or of being called unpatriotic. My experience with the plan is that as soon as you tell a service man's wife "You understand, of course, that you will have to go into a ward?" they put the green slip back in their purse and that's the end of it. She says she doesn't want it, so evidently it isn't meeting the needs that we are led to think it does.

Recently I had an experience to show that you don't really have fair dealing. I had a service man's wife—I didn't know she was a service man's wife until I filled out the birth certificate. I carried her through her pregnancy and attended her in the hospital. They paid me cash, and about six or eight weeks later I got a letter from the father down in Texas enclosing a letter from the state administration, I believe they called it. Anyway, it was from a member of the state board of health. It said "If the doctor will sign the enclosed slip we can get your wife's bill paid." I called up the state board of health and asked whether I should send the man's money back and wait for the money from the government. They said "No; we will write him that we made a mistake." Now this man was a "satisfied customer" until the government interfered.

It doesn't seem, in our neighborhood at least (and there are a lot of camps around us) that they want this attention if you tell them they have to go to a ward, although we will give them the same service in the ward that they would get in a private room. As soon as they hear the word "ward" they fold up the green tickets and put them back in their pocketbooks.

DR. GEORGE H. KRESS, San Francisco: The important things for us to remember are the implications involved in this federal children's program. Ten million men are in military service, and a great majority of them are married. We start then with 20 million citizens, and their fathers and mothers, 40 million more. Also count at least 20 million friends, or a total of 60 to 80 million citizens. And this adult population of the United States is to be educated to what? To accept a mandatory fee table to be in operation from one end of the United States to the other, in which Dr. Edwin Daily representing the Children's Bureau proposed to C. M. A. President Karl Schaupp and me in the office of the State Department of Public Health in San Francisco that the fee should be $35 to cover antepartum care, confinement care and postpartum care; antepartum care to imply a certain number of visits, Wassermann tests, hemoglobin determinations and urinalyses, with other usual antepartum care; in addition, all necessary confinement care and postpartum service with a visit to mother and child at least six weeks after the birth of the child.

The war may last three, four, five years. In the meantime the people of the United States will be educated to what, as far as this particular line of professional work is concerned? To a fee of $35, or perhaps in some places $50, as full and fair compensation. At the conclusion of the war, in the minds of the great majority of citizens, $35 to $50 would be a proper fee for all this professional work, covering a period of months, with all its complications as they may arise. It would follow that any physician who would charge more than $35 or $50 would be guilty, in the minds of many citizens, of an atrocious, improper act.

In April or May last we held in Portland a meeting of the Pacific States Medical Executives Conference. In our discussion of the maternity-pediatric program the Oregon representatives presented their plan, saying that the money should be paid to the wife and not to the physician. As a member of the reference committee of that conference I sent a copy of our resolution to Dr. John Fitzgibbon, who in turn presented it to the House of Delegates of the American Medical Association, the resolution with minor modifications being adopted by the House in June.

In California we are in full accord with the objective of giving adequate professional care to the wives and infants of

enlisted men. However, the Council of the California Medical Association has voted that it is up to the individual physician to determine what procedure he wishes to observe in this work.

Dr. Edwin Daily, representing the Federal Children's Bureau of Washington, D. C., came to California and gave the C. M. A. Committee on Maternal Care one hour, and then the conference was closed because he had to consult with hospital representatives. In our discussion with Dr. Daily he brought out the fact that the proposed fee was to be $35 for all of the service already mentioned. I asked Dr. Daily where he had gotten his figures, and he said "From the American Medical Association." I said, "Oh, impossible! They couldn't have given you figures of that kind. I am sure when I go back to my office," I said, "I will be able to find fee schedules passed years ago by component county societies of the California Medical Association in which fees were in excess of $35 for all of the services you include in your maternity-pediatric program." I did find such schedules, and the fees ranged up to $500 for complicated obstetric cases. We told Dr. Daily that $35 for adequate antepartum, confinement and postpartum care was out of the question as far as California was concerned and insisted that the minimum fee should be $50. Also, as regards California, we would object to the promulgation of the plan unless it was stated in the literature "This program is made possible only through the generous cooperation of the members of the medical profession," and our California State Board of Public Health has been printing such a statement on its literature.

I wrote to Secretary Olin West and asked him concerning the statement by Dr. Daily that in more than three hundred fee bills that had been obtained from the American Medical Association, every such schedule was $35 or less. Dr. West was unable to find in the files of the Association any record of any such information having been sent to the federal Children's Bureau. All that was found was a record, I think in the American Medical Association Bureau of Medical Economics, of one discharged employee who may have sent such information to Washington. Then I corresponded with Dr. Daily, and from Dr. Daily I learned that the fee bills that he told us were the authoritative fee bills of the American Medical Association had been received by the bureau as photostatic copies from the files of the United States Public Health Service, the same being all the way from five to seven years old or more. Yet the federal Children's Bureau saw fit to have its representative go across the country with only that kind of authority in back of it, using the same with committees and representatives of constituent state associations and urging them to abide by their program under the exigencies which are now confronting us in a time of war.

On one other point, I think I am correct in my memory, and Dr. Daily can correct me if I am in error. At one point I said "Dr. Daily, suppose the case is a difficult one, say, a difficult forceps case or a cesarean section. What would be the compensation for the specialist obstetrician?" And I think Dr. Daily told us in the beginning that it had to come from the general practitioner's fee. To that we strenuously objected, and Dr. Daily then stated he would be willing that there should be an additional fee up to $50 for this specialist care, and that he would so recommend, presumably to the federal Children's Bureau.

Of course, we were anything but happy to think that the American Medical Association should not have entered the picture at the very beginning, when the program was got under way by the federal Children's Bureau. That was one reason why an editorial appeared in *California and Western Medicine* for which we were criticized in THE JOURNAL. We retract nothing from what we stated in our official journal. We think we were right then. It seems to us that when this program with its extensive implications was being formulated, that somewhere, somehow, our good friends here at 535 North Dearborn Street in Chicago should have got into the picture, should have been back there in conference with the inside executive group of the Children's Bureau and have helped guide it in its course of action. We also felt bad to think that our good friend Morris Fishbein failed to call this program, with its serious implications, to our attention, editorially. We felt he should have given us something over and above what appeared in little memorandum statements and news items concerning the progress of these Children's Bureau negotiations.

Our Council of the California Medical Association has voted as follows: The Council approved the plan of adequate service and all possible care to the wives of enlisted men and told the members of the California Medical Association that it was up to them individually to do as they deemed best in the premises; calling their attention to the fact that if they signed on the dotted line they would receive $50, not one penny more, nor could they receive one penny more directly or indirectly for the services rendered. If, however, they did not choose to sign, and if the patient did desire to become a private patient, well and good. However, in order to make available the hospital care to these wives, the patient could still obtain the hospital costs from the California State Board of Public Health if the physicians themselves would refuse to accept any money for their services—in other words, give gratuitous professional service to these patients. That is the program we are following at the present time, and I take it that it will be the program we shall continue to carry on.

It seems to me that all of this discussion of costs involved, or the saving of money to the government, by asking physicians to give services below cost, is beside the major point. We are involved here with great principles and, as has been stated by Dr. Bauer, this maternity-pediatric program may be the foot inside the door on behalf of state medicine; and with all deference to the officials of the Children's Bureau, the statements which have been made today indicate that such a thought is not without justification. Permit me to cite an example to show how governmental departments sometimes work: Yesterday afternoon Mr. Holloway and I drafted a series of telegrams to California representatives in Congress relative to a bill dealing with migrant agricultural workers. Out in California the migratory agricultural situation has been a very big problem. With the aid of the California Medical Association, an excellent medical service has been devised, in full cooperation with the government officials. Comes now another governmental agency, the United States Employment Service, with amendments to Public Law 45, which would take away from migratory workers, who do not secure their jobs through the United States Employment Service, the right of medical service for themselves and their families. That is the way governmental bureaus act.

Now, as to the future of the federal Children's Bureau's maternity-pediatric program: The federal Children's Bureau in the beginning evidently miscalculated the number of patients who would come under this act. Witness the initial appropriation of 1 million, with subsequent deficiency appropriations of 4 million and 18 million dollars. These would indicate that there will be other deficiency appropriations needed to carry on this work.

It is, then, up to the members of the medical profession, through the constituent state associations, so to educate their congressmen that when these deficiency bills are presented we shall have a different tally of votes than when only about 125 members of the House of Representatives voted on how the federal money should be paid. I believe if we are alert to our legislative responsibilities, appreciating the implications that are involved in all of this, even the Children's Bureau will be obliged to sit up and take notice in some of these congressional matters. Congress makes the grants in aid, and the monies are then distributed through the agency of the Children's Bureau to the proper constituted authorities in the various commonwealths. In most cases these are the state boards of public health. The state boards of public health are then called on to administer the act, but if the state boards of public health do not conform to the program outlined by the Children's Bureau they are held up in the usual governmental bureaucratic manner.

I shall be glad to have Dr. Daily discuss some of these other phases rather than the costs. With all the billions and billions of dollars that are being spent for a host of things today, I am but little concerned with whether the Children's Bureau saves 5 million or 10 million dollars in this work, all at the expense of the medical profession. But I am terrifically concerned with what will be the end result to medical practice and to the quality and type of medical care and medical service we all believe in, if some of these bureaucratic endeavors are carried too far.

DR. WALTER L. BIERRING, Des Moines, Iowa: As a state health commissioner, I have been in a position to observe some of the administrative difficulties attending the Emergency Maternity and Infant Care program. It is difficult to understand the attitude of the Children's Bureau in determining the administrative plan without previous conference with the professional agencies that are responsible for rendering the service to the wives of enlisted men. This apparent lack of confidence in the practicing physician is evident in the difference in the fees allotted for maternity service ranging from $35 in some states to $50 in others. The fee allotted to Iowa was $35, while in a later arrangement the fee was fixed at $40 in the adjoining states of Wisconsin and Minnesota and $50 in Nebraska. There is nothing in the Congressional Appropriation Act that restricts the attending obstetrician from accepting additional fees for the service rendered, but the Children's Bureau requires that he so obligate himself in signing the application. It is claimed that the American doctor cannot be trusted. In the words of the Children's Bureau, "if this were permitted there would be no purpose in the plan." What strange logic. The attending obstetrician may be certified by the American Board of Obstetrics and Gynecology, but if a complication should arise during the pregnancy he is required to call in a consultant whether he is certified or not. While medical fees are fixed, hospitals are allowed $5.50 a day up to a limit of $500 for one year and later on a per diem cost basis, which in some instances has been $7 a day and over. Frequent appeals have been made to have these inequalities corrected without result. There is but one tribunal, and that is always right. Without the fullest cooperation of the practicing physician, no federal plan of medical service can succeed or fulfil the purpose for which it has been established.

DR. MORRIS FISHBEIN, Chicago: I would like to refer briefly to the attitude of THE JOURNAL toward this situation and to make some remarks in extenuation in relation to the various editorial comments that have appeared on the subject in various publications. I would like to emphasize particularly some of the statements made by Dr. Bauer in relation to the technic of operation of those in charge of the Children's Bureau. Obviously the technic they employ to control as far as possible in a completely autocratic manner the methods of their operation is a well designed and worked out technic, designed to achieve the objectives that they achieve. The advisory committees that they select (bear in mind that they select their own advisory committee) are carefully chosen to produce a preponderance of sentiment leaning toward the objectives that they desire to reach. It is not a representative committee of the thought of the medical profession of the United States. The presence of Dr. Bauer on that committee, chosen as an individual, does not in any way represent the official actions of the American Medical Association or of any similar group in the United States. All of you know that it would be quite possible for any one to pick from any group seven or eight who would be definitely opposed to the majority of sentiment. The advisory committee chosen by the Children's Bureau does not represent American medicine. I would emphasize the analogy to the proposed advisory committee under the Wagner-Murray-Dingell bill. Under that bill there is an endeavor to set up such a pattern. The Surgeon General of the United States Public Health Service under that bill is authorized to set up an advisory committee which he himself appoints, and then he may take the advice or not, as he pleases. There again is a pattern for autocracy by bureaucracy, and that is something to be condemned with the utmost condemnation that medicine can provide.

A second point on which I would lay particular stress is the observation of secrecy in action until opposition becomes too late. Dr. Bauer as a member of that advisory committee has not the right or privilege, when he returns here to Chicago from a meeting, to tell publicly what went on. He must reserve such statements until they are officially released by the agency which he advises. The timing seems invariably such that it is all over before we can print what happened. That seems to be the pattern of action by the Children's Bureau. As to whether or not any one can accomplish anything in this problem remains to be seen. For many years there has been a determined effort throughout the United States to get coordination of health activities under the federal government. There was an act of Congress authorizing the President of the United States to coordinate various related activities under the executive administration. The President himself, desirous as he may have been to include the health activities of the Children's Bureau under the Federal Security Administration, which now includes the United States Public Health Service and the Food and Drug Administration and a considerable number of other medical activities, found it impossible to get the Children's Bureau included under a single coordinated administration. Until that is done there will no doubt be a continuation of exactly this sort of performance—the performance of a bureaucracy which is autocratic in its methods, secret in its operations and astute besides.

When a matter of this kind comes before us, the editor of THE JOURNAL must be guided by the policies of the House of Delegates or by an action of the Board of Trustees. When the House of Delegates has not taken action between meetings of the Board of Trustees, an endeavor is made to secure the point of view of the Board of Trustees by correspondence. This matter, as you have heard, came up gradually. It developed in the form of a small appropriation, which then became a larger appropriation. It came in as an appropriation bill. The actions taken are not the actions of the Congress but the regulations of the Children's Bureau under advice of its solicitor, and leaning on its advisory committee. If you criticize them they say, "We were advised by the Advisory Committee, which included representatives of the medical profession. We thought we could take their advice."

Whether or not this is an entering wedge, a foot in the door for federalized medicine, I am not at all certain. I endeavor to observe trends in government and in legislation; I would emphasize Mr. Holloway's statement as to the action of the Appropriations Committee of the House of Representatives on Dr. Parran's request for $1,000,000, and the positive statement of the Appropriations Committee that it did not believe in the use of federal funds to give medical care in the individual states, that that was a local responsibility. That seems to me to begin to represent the trend. The innumerable letters that have come from Senators and Representatives on this point also indicate a changing trend in thought, largely brought about, I believe, by activities of the medical profession in recent years. Equally a general resentment seems to be growing up through the United States to too much government interference in private life, no doubt justified by the war, but unquestionably bound to be resented at the earliest possible opportunity after the war. If you will observe the advertisements appearing in numerous magazines and newspapers, the editorials now being published and the cartoons, you will discover that there is a growing trend, a growing resentment, against too much federal interference in private life in the United States. Maybe if it grows enough eventually the Children's Bureau will be included where it belongs as a part of a single federal agency concerned with health.

DR. L. W. MASON, Denver: I too, like Dr. Rucker and perhaps several others in the audience, am one of those who, being endowed with less brains than the average man, in the course of time became an obstetrician. I don't care to go into the fee part of this maternal and child welfare bill in detail. I would like to say, regarding Colorado's attitude toward this, that last summer, as editor of the *Rocky Mountain Medical Journal*, I met with Dr. Cleere, the secretary of the state health board, who has the administration of this plan in Colorado, and with members of the Child and Maternal Welfare and Public Policy committees of the state medical society. Dr. Cleere had with him and gave to us a sheaf of papers about fifteen pages in length which embraced the provisions of this federal plan. Dr. Cleere had been told to, or had been given permission to submit a plan to the federal bureau of his own, and we presumed that what he would get back would be a compromise between what we had recommended and what had been proposed. After a considerable number of alterations, particularly in fees, and, as I say, I am not going to discuss individual fees in these remarks, the program was approved by the Public Policy Committee and by the Maternal and Child

Welfare Committee of the state medical society, to be brought up before the house of delegates, which didn't meet for about five or six weeks, for the approval of the state medical society. We did not get back from the Children's Bureau (or wherever it came from) a reply to our proposed proposition until after the state society met, and the state society through its house of delegates did ratify it, with the strict limitation that it was considered by the doctors who participated in it as strictly a patriotic measure and that it would not be approved for a period longer than six months after the emergency was over. The House of Delegates approved not what has been proposed but the schedule we have made, which involved some changes. After the house of delegates of the Colorado State Medical Society had met and approved what we proposed, we received back the plan from the Children's Bureau in practically the identical form we had received it before the meeting that night. One reason why Dr. Cleere was in a hurry at our meeting that night and said he could not wait to submit this until after the house of delegates met was the fact that his office was being besieged daily with dozens of applications from the wives of servicemen who had already found out—I won't say they had been told—but they all found out that they were to have this care, and his office was besieged all day long by expected recipients of this care, as to where to go to receive this manna from heaven.

Several times this morning we have heard speakers say they have been asked to serve in an advisory capacity to various governmental bureaus. If there has been any change in the activity of any bureau as a result of these advisory committees that we have furnished them, it has not been apparent in anything any one said to us this morning. As has been brought out very frequently, we are constantly put on the defensive in these matters because we don't know anything about them until after it is all done, and then it is too late to make any changes in the matter. It was pitiful to read in THE JOURNAL two or three years ago about our efforts to get somebody from the American Medical Association to represent the doctors on the Federal Planning Commission. We never did have a real invitation to that, and finally we were permitted to have some one there as an auditor. We had no voice whatever in the decisions that were made which affect us as the ultimate givers of the services involved.

I am firmly convinced that the time has come when there should be some change in the organization of the American Medical Association which will permit us to have some legally constituted bargaining agent whereby we can demand that we be given a voice in anything that affects us directly, and not be placed in the perpetual position as supplicants even for an auditor at these meetings which involve the services that you and I as individuals give. I would like to invite the editors and secretaries of this conference, who have a lot to do with molding the opinion of doctors throughout the country, to an editorial which I wrote and which is in the October number of the *Rocky Mountain Medical Journal* along those lines.

DR. P. T. TALBOT, New Orleans: Being one of the representatives of a black sheep state, so called because we were rather late in getting around to this proposition, I would like to have you recognize, Mr. Chairman, our distinguished president of the Louisiana State Medical Society, who is here and will tell you why we were so slow about adopting this measure. He is Dr. C. C. deGravelles, president of the Louisiana State Medical Society. I wish you would recognize him.

THE CHAIRMAN: The Conference recognizes Dr. deGravelles.

DR. C. C. DEGRAVELLES, New Iberia, La.: At the meeting of the Louisiana State Medical Society last April this proposition was put before the house of delegates. The house of delegates turned it down in toto; then they reconsidered and asked that the president appoint a committee to look into the matter. I appointed a committee composed of Dr. O'Ferrall as chairman, with two other members, and Dr. O'Ferrall did a wonderful piece of work. He contacted many other states and got their views. After going into the thing very thoroughly we turned it down again. Then we got another plan. I called several meetings of the executive committee of the state, and each time it was turned down, until about six weeks ago we began to be really "worked on." I began to receive letters from high officials wanting to know where the patriotism was of the doctors of Louisiana, because we were going back on the enlisted men. I had several letters from the American Legion, and we began to be criticized from all directions. We are having a governor's race in our state now, and the politicians began to jump on me. So I called another meeting of the executive committee and we accepted the proposal under protest. It is now before the Children's Bureau in Washington. We turned this down for several reasons, but one of the principal reasons was the "foot in the door" angle. It seems now that we have two feet in the door. At first it was the care of the obstetric end, but now, as I understand it, we are supposed to take care of any emergency that arises. Another factor that is worrying us very much in Louisiana is the fact that we have between 300,000 and 400,000 soldiers being trained there in our camps. We are extremely short of physicians. Louisiana has oversubscribed its quota in physicians to the Army. Conditions existing around those camps are not good. Around Alexandria the doctors are hardly able to take care of the civilian population. Now the soldiers' wives are drifting in. How the doctors are going to take care of them I do not know. The hospital facilities simply are not available. I have one friend who told me about 2 cases he had last week, which were delivered in a little one room shack with absolutely no help. Now the women are being left there. What is going to happen to those cases? We do not have the hospital facilities for them. I find that the doctors throughout the country are ignorant about this proposal. I believe we should tell our story to the American people through every available means. If the American Medical Association must forfeit its tax exemption status for the privilege of interpreting the medical profession to the American people let us get together and do something about it. I believe the American Medical Association should have an information bureau in Washington to maintain continuous communication between the medical profession and the people, between the agencies and legislation who are interested in the service that the American medical profession renders.

DR. ANDERSON: Mr. Chairman, I wouldn't have come to this platform if the name of Texas hadn't been drawn into this discussion, and the members of the conference are entitled to know its position, as far as the medical profession is concerned. Texas is one of those states which have been publicized far and wide as not having accepted the program of the Children's Bureau. The publicity which has come from the Children's Bureau, pointing out that Texas hasn't done so, has been hurtful to the medical profession of Texas. It has been that type of publicity. Actually the reason why that program is not operating in Texas as it is supposedly operating elsewhere is not the action of the State Medical Association of Texas but legal complications which have made it impossible for our state health officer to receive the moneys to be disbursed according to this program, or so it has been reported to us. Now, when those legal complications are done away with you are going to see the announcement in the public press that Texas has joined the vanguard and has this program in operation. Then again I want you to remember that it isn't going to be in operation in Texas with the approval of the State Medical Association of Texas, because the State Medical Association of Texas, through its executive council, has neither approved the plan officially nor disapproved it. It has done as we have heard discussed here—recognized that this program is another example of the socialization of medicine. To try to curb or stop some of the tendencies of various bureaus of the federal government in these "foot in the door" matters, our executive council meeting at Fort Worth on July 13 (and I am referring now to the threats to socialized medicine confronting us, such as the Farm Security Administration with its medical program, the Department of Agriculture with its experimental health program, the Children's Bureau with its maternalistic plan of paying the doctors directly for services to the wives and children of enlisted men in our armed forces and perhaps others)—adopted the following resolution:

Whereas, The medical profession as an organization is solicited and urged by various governmental agencies to enter into agreements and contracts sought to be made for the purpose of supplying the hospital and medical services to certain specified groups of our people; and

Whereas, We feel that all such agreements and contracts sought to be made by governmental agencies with the medical profession as an established organization would ultimately regiment medical services to the sick, if such contracts and agreements were agreed to and entered into by our profession as an organization; therefore, be it

Resolved, By the Executive Council of the State Medical Association of Texas, in called meeting this day assembled,

"First: That the State Medical Association of Texas, its component societies, committees, bureaus, representatives and officers be advised and directed, as such, not to sign or agree to any plan, agreement or contract sought for the purpose of providing hospital and medical care for any designated group or groups.

Second: That any physician as an individual is free to make any agreement or contract with any group, agency or organization for the purpose of rendering his medical care and services to any persons designated and agreed on. All fees and all terms of any contracts or agreements made and entered into to be decided and fixed by the physician as an individual and any agency or any authority which may be a party to the contract.

Third: The medical profession never has, does not now and never will seek to escape any duties or obligations. We yield to no group when loyalty and devotion are called on to protect the interest and welfare of our people

DR. C. N. JAEKEL, Detroit: It seems to me there is one point that should be cleared. I refer to the responsibility for what Dr. Foster has referred to as the edict of the Children's Bureau. Dr. Daily said they secured advice from the attorney general of the United States. We wrote to the attorney general of the United States and asked for a copy of that opinion, and he sent us an opinion to the effect on another point, namely to the effect that osteopaths could participate in this program. I would like to ask Dr. Daily if the opinion to which he referred, on the basis of which the Children's Bureau says the money cannot be paid to the women directly, is in writing?

DR. DAILY: Yes, the opinion from the solicitor of the Department of Labor is in writing. Of much more importance is the action of Congress during recent appropriation act discussions when the specific point was brought to its consideration, that is the amendment proposed to the House making the benefit payment to the wife. The House turned down that amendment.

DR. JAEKEL: That was a negative action of Congress, and it is reasonable. It denied and refused to accept something that was positive. The fact that Congress turned down the proposed amendment does not mean that it mandated that the money should be paid to the doctors.

DR. L. W. LARSON, Bismarck, N. D.: Representing a state in which the plan has been definitely turned down, I want to get into that select group of three states that do not want the president of the Louisiana State Medical Society to go home with the idea that there are only two states that have rejected the plan. You allowed yourselves to get into this mess. We turned it down, and fortunately we had enough friends in high places in our state who stood with us. As long as we have a governor who is a Democrat, a friend of the medical profession—he controls the state board of health; the chairman and the counsel of the state board of health is the chairman of our Committee on Maternal and Child Welfare; the state health officer depends for his livelihood on the appointment not only from the governor but on the recommendation of that counsel—as long as that state of affairs exists in our state we are not going to have a plan in operation in North Dakota that is not entirely acceptable to the profession of our state.

WOMAN'S AUXILIARY

Montana

The Woman's Auxiliary to the Silver Bow County Medical Society was organized recently. The organization meeting was presided over by Mrs. P. E. Logan, Great Falls, president of the Montana State Medical Association auxiliary. The following officers were elected: president, Mrs. Harold Schwartz; vice president, Mrs. T. J. B. Shanley; secretary, Mrs. P. E. Kane; treasurer, Mrs. C. B. Rodes.

North Carolina

The executive board of the North Carolina auxiliary met at the home of Dr. and Mrs. P. P. McCain at Sanatorium, October 14. Twenty-one members were entertained at luncheon.

North Carolina, under the direction of Mrs. B. W. Roberts, war participation chairman, plans to furnish thirty emergency medical kits to small ships of the Coast Guard and the Navy. It expects to help enlist nurses, interest members in first aid classes, Red Cross and other organizations connected with national defense, and have drives for surgical and medical supplies.

Pennsylvania

The Woman's Auxiliary to the Medical Society of Pennsylvania held its state convention recently in Philadelphia. Mrs. Charles G. Eicher, Mount Lebanon, state president, presided.

South Carolina

At the Pickens County medical auxiliary meeting recently plans for a county hospital were discussed, the new tuberculosis field worker talked of her work, and an informative article on penicillin was read.

The midyear executive board meeting of the South Carolina auxiliary convened in Greenville, October 13, with Mrs. J. E. Orr, president, presiding. The student loan fund, no longer needed since the government had taken over medical students, was turned into war bonds.

Texas

The Texas auxiliary is having well attended meetings in the various county auxiliaries. Mrs. A. B. Pumphrey of Fort Worth is president. In the Kerr-Kendall-Gillespie-Bandera Counties auxiliary twenty-one members reported that it had given 453 hours to Red Cross work during the summer. Tuberculosis Christmas seals were sold under the sponsorship of the Kerr County auxiliary. The Jefferson County auxiliary is giving one day a month to Red Cross work. The El Paso County auxiliary and Dallas County auxiliary are also active.

The executive board of the Texas auxiliary met recently in Fort Worth with Mrs. A. B. Pumphrey, state president, presiding. She gave an interesting address and stated her aims for the year. The auxiliary will sponsor an essay contest on the subject "Medical Science Fights at Home and Abroad." Members were urged to fight the Wagner-Murray-Dingell bill, and Dr. R. B. Anderson, guest speaker, gave four concrete ways in which the auxiliary could help the medical profession.

West Virginia

A special committee from the executive board of the Woman's Auxiliary to the West Virginia State Medical Association recently met with the Fact Finding and Planning Committee of the association in Huntington for the purpose of completing plans for a statewide educational program pertaining to constitutional government.

Mrs. V. E. Halcomb, Charleston, a past president of the national auxiliary, is chairman of the speaker's bureau for West Virginia.

The West Virginia auxiliary held its fall board meeting in Charleston recently, with twenty-two members present. It plans to publish a news letter, which will be sent to each member and to the doctors from West Virginia who are in military service.

Wisconsin

Mrs. L. H. Lokvam, president-elect of the Wisconsin auxiliary, was a guest of the Woman's Auxiliary to the Kenosha County Medical Society at its October meeting. Dr. C. C. Davis, president of the Kenosha Medical Society, spoke to the group on "Medical Legislation."

Ten past presidents of the Woman's Auxiliary to the Medical Society of Milwaukee County were hostesses at the opening luncheon and fall meeting at the City Club recently. The guest speaker was Dr. John F. Lundy, Rochester, Minn., who discussed "Painless Childbirth."

Fond du Lac, LaCrosse and Sheboygan auxiliaries also report interesting fall meetings.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Annual Course in Ophthalmology and Otolaryngology.—The thirteenth annual midwinter postgraduate clinical convention in ophthalmology and otolaryngology, January 17 to 28, under the auspices of the Research Study Club of Los Angeles, has been designated the John Finch Barnhill Memorial Program in honor of the late Dr. Barnhill, who directed the program for so many years. A special course in "Applied Anatomy and Cadaver Surgery of the Head and Neck" will be given from January 28 to February 1. Among the lecturers will be:

Dr. Georgiana M. D. Theobald, Oak Park, Ill., Anatomy and Histology of the Anterior Segment of the Eyeball with Special Reference to the Canal of Schlemm.
Dr. James Watson White, New York, Pathological Variations: Individual Muscles; Associated Movements; Convergence Divergence; Sursumvergence and Rotation.
Irving B. Lueck, M.S., Rochester, N. Y., Some Optics of Ophthalmic Lenses.
Dr. Meyer Wiener, Coronado, Calif., Surgery of the Eye.
Weston A. Price, D.D.S., Banning, Calif., Deficiency Diseases and the Eye, Ear, Nose and Throat.
Dr. Isidore Friesner, New York, Neoplasms Involving the Middle Ear.
Dr. Clinton H. Thienes, Los Angeles, Statistical Evalution of Data Obtained in Experimental and Clinical Study.
Dr. Arthur W. Proetz, St. Louis, Common Misconceptions in the Management of Sinusitis.
Dr. Samuel Salinger, Chicago, An Analysis of Etiologic and Diagnostic Factors in Chronic Sinusitis.
Dr. Isaac H. Jones, Los Angeles, Vitamins and the Eye, Ear, Nose and Throat.
Dr. Paul M. Hamilton, San Marino, Calif., The Use of Penicillin in Ophthalmology and Otolaryngology.
Dr. Lawrence K. Gundrum, Los Angeles, The Effects of Sulfonamide Solutions on the Nasal Mucosa.
Dr. Carl H. McCaskey, Indianapolis, Ludwig's Angina.
Dr. Gordon B. New, Rochester, Minn., Laryngeal Lesions: Diagnosis and Treatment.

The annual meeting of the Los Angeles Society of Ophthalmology and Otolaryngology will be a feature of the meeting January 17, and on January 22 the western section of the American Laryngological, Rhinological and Otological Society will hold its annual session.

CONNECTICUT

Clinics for Inebriates.—A diagnostic and guidance clinic for inebriates will be opened in New Haven in February under the joint sponsorship of the Yale Laboratory of Applied Physiology and the Connecticut Prison Association. A similar clinic will also be opened in Hartford in the near future. With the active participation of the Connecticut State Medical Society and religious and civic organizations, the clinics will deal with both the prevention and the control of inebriety. Their objectives will be to contribute toward the prevention of inebriety, to aid the inebriate to regain his usefulness in the community, to ease the economic burden imposed by present handling of inebriates, to ease crowding of prisons and jails, to serve as consultants to courts and welfare agencies, to serve as advisers to inebriates and their relatives, to acquaint the public in general with the medical aspects of inebriety and to serve as experimental models for future procedures, to train social workers in this field and to provide material for clinical-statistical research studies. The plan for the clinics was worked out in close cooperation with Chief Justice William M. Maltbie, Hartford, president of the Connecticut Prison Association, and their opening is assisted by a large contribution to the association by an anonymous Hartford donor. Each clinic will be staffed by psychiatrists, a psychologist, a social worker and a clerk, with representatives of Alcoholics Anonymous and the Salvation Army on call, and will work under the supervision of Elvin M. Jellinek, Sc.D., director of the School of Alcohol Studies, Yale Laboratory of Applied Physiology, the medical director of clinics and a legal consultant. According to a release from Yale University, the clinics will take advantage of the existing institutions of the state and serve as a clearing house for them. The creation of an institution for the treatment of inebriates at present is not contemplated, it was stated. Dr. Ralph S. Banay, psychiatric consultant of the New York State Parole Board and formerly chief psychiatrist of Sing Sing Prison, will be the medical director and will supervise both the New Haven and the Hartford clinic. Dr. Clements C. Fry, New Haven, psychiatrist of the Yale Department of Health, will serve as adviser. Dr. Banay will also participate in the routine clinical work. Anna Roe, Ph.D., a member of the staff of the School of Alcohol Studies, will be in charge of psychologic testing, and Raymond G. McCarthy will have charge of the social work. The Hartford clinic will be served by a psychiatrist four days a week and the New Haven clinic three days a week. The social workers and clerks will serve full time at each clinic. Dr. Howard W. Haggard, director of the laboratory of applied physiology at Yale, who will be in general charge of the program, stated that these clinics are the first of the kind to be set up in this country. Persons referred to the clinic will be interviewed by the psychiatrist and investigated by the social worker. The psychiatrist's recommendations will be based on his finding as modified by a knowledge of the patient's personality, his family and employment relations and other factors. He may recommend court or voluntary commitment for treatment or contact with Alcoholics Anonymous or the Salvation Army and make the contact of special occupation or private treatment. No specific sanatorium or therapist may be named, but the patient will be given a list of sanatoriums and private practitioners specializing in the treatment of alcoholism approved by the Connecticut State Medical Society. Medical examinations will not be given at the clinics, but patients will be referred to practitioners selected from a panel prepared by the state medical society, the cost to be borne by the clinic. The advisory committee appointed by the state medical society is composed of Drs. Arthur B. Dayton, New Haven; Leslie R. Angus and Foster E. Priddy, Hartford; Louis H. Cohen, Norwich, and Francis M. Shockley, Stamford.

ILLINOIS

Dr. Sievers Named Chief of Communicable Diseases.—Dr. Jerome J. Sievers, assistant state health director, has been appointed chief of the division of communicable diseases, effective January 1, succeeding the late Dr. John J. McShane. Dr. Sievers resigned as assistant director, a position which he had held since Sept. 1, 1943, to accept the new appointment. Dr. Sievers was graduated from the University of Illinois College of Medicine in 1935 and received his M.S. degree at the University of Michigan in 1939, the same year in which he joined the state department of health. Prior to his appointment as assistant state health director he served as assistant to the chief of the division of communicable diseases.

Cancer Forum.—The Chicago Cancer Committee, Inc., will sponsor a forum for residents of the North Shore suburbs at the Winnetka Community House, January 18. Dr. Irving S. Cutter, Wilmette, medical superintendent, Passavant Memorial Hospital, will be the moderator, and Dr. Ludvig Hektoen, chairman of the Chicago Cancer Committee, will make the introductory statement. Among the speakers will be:

Dr. Bowman C. Crowell, The Course of Cancer.
Dr. Josiah J. Moore, The Causes of Cancer.
Dr. Herbert E. Schmitz, The Diagnosis of Cancer.
Dr. John A. Wolfer, The Curability of Cancer.
Dr. Frederick W. Merrifield, What the Patient Can Do About It.

The Winnetka forum will be the fourth arranged by the Chicago Cancer Committee for the public to give information about the curability of cancer when treated in an early stage.

Chicago

Births Set New Record at Chicago Lying-In.—The total number of deliveries at Chicago Lying-In Hospital and Dispensary of the University of Chicago was 3,813 during the year ended June 30, 1943, according to a recent release. The total, an increase of 11 per cent over the previous year, recorded an all time high for the institution for its forty-eight years' existence. The mortality among newborn infants was 3.1 per cent for babies who were either stillborn or died during the first two weeks of life.

Changes in the Faculty at Northwestern.—New appointments to the Northwestern University Medical School include Dr. Malcolm T. MacEachern to associate professor of medicine, Dr. Henry C. Sweany to associate professor of medicine, Dr. John Carroll McCarter to assistant professor of pathology and Chi Che Wang, Ph.D., to assistant professor of physiology. Recent promotions at the school include those of Drs. Abraham Levinson to associate professor of pediatrics, Frederick W. Merrifield to assistant professor of surgery and Leonard Cardon to assistant professor of medicine.

Chilean Visitors in Chicago.—Col. Flavio Meza Olva, prospective surgeon general of the Chilean army, and Major Ramon Vicuna Herboso, surgeon attached to the army headquarters, were accompanied by Capt. Gustave Freeman, M.R.C., Surgeon General's Office, Washington, D. C., on a tour of medical points of interest in Chicago, January 5-9. Among the places visited were the American Medical Association, American College of Surgeons, American Dental Association and the local medical schools. They were guests of the American Medical Association during its radio broadcast entitled "Doctors at War" over NBC on January 8.

Medical Missionaries Home on Gripsholm Honored.—A luncheon was held on January 7 at the Hotel LaSalle under the auspices of the Chicago Committees and the Christian Medical Council for Overseas Work to honor American missionary doctors and nurses just returned on the *Gripsholm*. Among those present were Drs. William W. Cadbury, Canton, China, Ernest H. Clay, Foochow, China, and John Horton Daniels, Nanking, China, and Johanna Margaret Friberg, R.N., Willie Pauline Harris, R.N., and Alice Maud Powell, R.N. Dr. Walter H. Judd, representative from Minnesota, was the guest speaker. Dr. Judd, who in 1942 received a medal "of honored merit" for wartime services to China, was formerly a missionary in China.

KANSAS

Dr. Mayes Joins Children's Bureau.—Dr. William Fred Mayes, Topeka, has resigned as director of the division of maternal and child welfare of the Kansas State Board of Health, effective Dec. 1, 1943, to become regional medical consultant for the Children's Bureau, Washington, D. C. Temporarily, Dr. Mayes is to be located in the Kansas City district. He has been director of the state division of maternal and child welfare since May 1, 1942.

The Porter Lectures.—Dr. Herbert M. Evans, director of the Institute of Experimental Biology, University of California, Berkeley, gave three lectures under the Porter Lectureship in Medicine at the University of Kansas School of Medicine, Lawrence-Kansas City, December 8-9. The titles of Dr. Evans lectures were "The Present Position of Our Knowledge of the Anterior Hypophysial Hormones," December 8, "The Internal Secretions of the Pituitary Body: A Historical Résumé" and "The Adrenotropic Hormone of the Anterior Hypophysis," December 9.

MARYLAND

New Director of Child Hygiene.—Dr. Dean W. Roberts, Baltimore, was recently appointed chief of the bureau of child hygiene of the Maryland State Department of Health. He succeeds Dr. Edward Davens, Baltimore, who was granted military leave on Oct. 11, 1943.

One Hundred and Fifty Years of Health.—The December *Baltimore Health News* commemorates the 150th anniversary of the founding of the public health service of the community, resulting in the present city health department. The first local health unit board was organized in Baltimore in 1793, announcing in that year that Baltimore is "free from the Yellow Fever." This fact has peculiar historical significance because of the epidemic of yellow fever among the 40,000 inhabitants in Philadelphia in that year, when a group of 4,044 died of yellow fever. *Baltimore Health News* carries the development of the board from its inception and touches on the organization of similar boards in Boston, Philadelphia and New York, recalling that the first president of the Boston town board of health in 1799 was the renowned Paul Revere. In 1793 "an act to appoint a health officer for the port of Baltimore-town, in Baltimore County" was prepared and now hangs in the state hall of records in Annapolis bearing the signature of the governor, Thomas Sim Lee, and the date of assent, Dec. 28, 1793. The act contains a section authorizing the erection of a temporary quarantine hospital, this probably stemming from the fear of yellow fever, which had been reported in Philadelphia and which subsequently caused a devastating epidemic.

MASSACHUSETTS

Boston Dispensary Offers Fellowships in Medicine.—The Boston Dispensary offers six fellowships in medicine in its clinics and domiciliary medical service for appointments immediately or before July 1. The fellowships are approved by the American Board of Internal Medicine in satisfaction of graduate training. Additional information may be obtained from Mr. Frank E. Wing, director of the Boston Dispensary, 25 Bennet Street, Boston.

Personal.—Dr. Harvey Spencer, Wellesley, has resigned as acting director of the Habit Clinic for Child Guidance and as psychiatrist at the Judge Baker Guidance Center, Boston, to join the staff of the Austen Riggs Foundation, Stockbridge. ——Dr. Valy Menkin, formerly assistant professor of pathology at the Harvard Medical School, Boston, is now associate in research at the Fearing Research Laboratory of the Free Hospital for Women, Brookline, where he will continue his studies in general pathology with particular emphasis on inflammation and cancer research.

Children's Clinic Named for Physician.—The new Southard Clinic for Children and Adults was recently opened in Boston under the auspices of the Massachusetts Department of Mental Health. The clinic is a memorial to the late Dr. Elmer E. Southard, first director of the Boston Psychopathic Hospital in 1912. Dr. Harry C. Solomon, recently appointed professor of psychiatry, Harvard Medical School, Boston, was chosen medical director to organize the clinic and is assisted by Drs. Oscar J. Raeder and Edgar C. Yerbury as co-directors. According to the *Monthly Bulletin* of the state society for mental hygiene, the present staff of the clinic comprises five psychiatrists, one neurologist, six psychologists and nine psychiatric social workers. The clinic fulfils the need of a mental hygiene center for children and adults. It is an outpatient unit equipped with modern facilities for study and treatment of psychiatric and neurologic conditions. It functions as a psychiatric teaching and training center for members of the medical, nursing and psychiatric social work professions.

MICHIGAN

Students Win Scholastic Awards.—At the commencement exercises of Wayne University College of Medicine, Detroit, December 9, the distinguished service award given to the student outstanding in scholarship and extracurricular activities went to Dr. Steven E. Staryk, Detroit, president of the Student Council. The Alumni Award, presented to the student who has maintained the highest scholastic standing during his four years in the college, was given to Dr. Oscar J. Balchum, Detroit.

Personal.—Orin E. Madison, Ph.D., Detroit, has been reelected president of the Board of Examiners in the Basic Sciences for the State of Michigan. Arthur M. Chickering, Ph.D., Albion, was elected vice president.——Drs. Robert L. Schorr and Otto T. Toepel, Detroit, who are honor members of the Wayne County Medical Society, have been elected to emeritus membership in the Michigan State Medical Society. ——Harold S. Adams, Ph.D., recently chosen vice president and director of production of the Upjohn Company, Kalamazoo, died December 4.

MINNESOTA

County Society Plans Group Annuities.—A group plan combining low cost life insurance annuities for members wishing to participate has been recommended for acceptance to its members by the board of directors of the Hennepin County Medical Society. A basic policy of $5,000 insurance and an annuity at $50 per month at age 65 is a feature of the plan, members to purchase additional units as desired.

Special Society Elections.—Dr. Walter P. Gardner, St. Paul, was elected president of the Minnesota Society of Neurology and Psychiatry at a meeting in Minneapolis November 12, Dr. James W. Kernohan, Rochester, vice president and Dr. Royal C. Gray, Cambridge, secretary-treasurer. Dr. Kernohan discussed "Healing of Brain Wounds" at the meeting and Dr. Joseph C. Michael, Minneapolis, "Acute Ascending (Landry's) Paralysis."——Dr. Bayard T. Horton, Rochester, was elected president of the Minnesota Society of Internal Medicine at its recent annual meeting in St. Paul.

Continuation Course in Otolaryngology.—The Center for Continuation Study at the University of Minnesota, Minneapolis, announces a continuation course in otolaryngology for physicians who limit their practice to ophthalmology and otolaryngology, February 7-11. Registration will be limited to 50 physicians. The faculty will include:

Dr. Oscar V. Batson, assistant professor of otolaryngology, University of Pennsylvania School of Medicine, Philadelphia.

Dr. Paul H. Holinger, associate in laryngology, rhinology and otology, University of Illinois College of Medicine, Chicago.

Dr. John R. Lindsay, professor of surgery, department of otolaryngology, University of Chicago School of Medicine.

Dr. Theodore E. Walsh, professor of otolaryngology, Washington University School of Medicine, St. Louis.

Dr. Lawrence R. Boies, clinical associate professor of otorhinolaryngology, University of Minnesota Medical School, Minneapolis.

Additional information may be obtained from the Center for Continuation Study, University of Minnesota, Minneapolis 14.

NEW JERSEY

Rotarians Serve as Hospital Helpers.—The Rotary Club of Elizabeth recently created a system of "volunteer corpsmen" who work in the emergency and operating rooms at the local hospital as well as with the ambulance detail. The system was worked out to overcome the manpower shortage at the hospital. The Rotary Club named a committee, made the activity communitywide, lined up 30 volunteer "corpsmen" and then outlined long range plans for training classes to take care of additional volunteers. The men work in three shifts that run from 7 a. m. to 11 p. m. and, according to the *Rotarian*, "lift, carry, push and shove heavy hospital equipment. They bring patients to the operating room, stand by as anesthesia is administered, manipulate the lights needed by the surgeon, return the patient to his bed and then come back to mop up the floor. They drive the ambulance, handle its passengers. They operate laundry equipment. They help out in the mental hygiene ward. And in addition should any major disaster, such as an air raid, a plant explosion or a transportation smash-up, put an added burden on the hospital's facilities, the 'corpsmen' are pledged to put in needed 'emergency hours' to help out." The plan started when a hospital superintendent, a member of the Rotary Club, discussed the shortage of help, particularly with heavy work, at the hospital during a meeting of the Rotary Club.

NEW YORK

Personal.—Dr. Mark D. Duby has been appointed health officer of Schuylerville.——Dr. Hugh H. Shaw on January 1 entered his twenty-fifth year as health officer of Utica.——Dr. Terry S. Montague, Gouverneur, has been appointed health officer of Watertown, succeeding Dr. George B. Van Doren, retired.

Canvass of Home Accidents.—As a part of an educational program the State Home and Farm Safety Advisory Committee is collecting information on the statistics of nonfatal home accidents through the cooperation of volunteer canvassers and householders in a house to house canvass of home accidents. The cities of Oneida, Saratoga Springs and Oswego have already submitted reports, and the canvass is in progress in fifteen other cities. According to *Health News*, steps are being taken in the larger cities to organize a canvass on a basis of a cross section of the population, the project to be continued throughout the winter and early spring. No names of individuals are entered on the record forms, but there apparently is little or no reluctance to report an accident or even to take the blame for it if a human factor was in any way responsible. The most unusual and costly accident thus far reported was the explosion of a can of lye, *Health News* stated. The extensive burns which resulted required plastic surgery, and the cost of hospital and medical care ran into several thousand dollars. The accident was believed to have been caused by a manufacturing defect. Stepping on broken glass left on the floor in the dark caused an accident which resulted in the longest period of invalidism reported. When the survey is completed the statistics will be analyzed by the National Safety Council, which recommended the project, and the results will be used for national and state guidance in home accident prevention. The state department of health and the office of civilian mobilization of the state war council are sponsoring the project.

New York City

Psychiatrist Addresses Public Meeting.—Dr. Walter S. Maclay, medical officer in charge of the Mill Hill Emergency Hospital, London, addressed an open meeting on January 3 sponsored by the Medical Society of the County of Kings, the Brooklyn Chapter of the American Red Cross and the Brooklyn Council for Social Planning. Dr. Maclay discussed the treatment of war neurosis in Britain.

Dr. H. C. Taylor Appointed Chairman of Obstetric Department.—Dr. Howard C. Taylor Jr., associate professor of gynecology and obstetrics, New York University College of Medicine, since 1935, has been appointed chairman of the department of obstetrics and gynecology at the school. Dr. Taylor, who is associate editor of the *American Journal of Obstetrics and Gynecology*, graduated at the Columbia University College of Physicians and Surgeons in 1924.

Conference of Tuberculosis and Health Association.—The annual conference of the New York Tuberculosis and Health Association will be held at Hotel Pennsylvania on Wednesday, February 2. There will be morning section meetings on tuberculosis, the heart diseases, social hygiene and dental health in industry. The meeting on heart diseases will be held at Hotel Governor Clinton. At a luncheon meeting in the Hotel Pennsylvania the speakers will be Rear Admiral Charles S. Stephenson (MC), U. S. Navy, and Sir Gerald Campbell, British minister in Washington and special assistant to the British ambassador.

Offers Plan to Eliminate Medical "Kickbacks."—A plan to eliminate "kickbacks" to physicians was outlined on December 15 to the Moreland Commission inquiring into alleged abuses in the administration of the workmen's compensation act by Dr. David J. Kaliski, chairman of the workmen's compensation boards of the Medical Society of the County of New York and of the Medical Society of the State of New York. According to the New York *World-Telegram* Dr. Kaliski first told the commissioners that more than 500 cases of alleged fee splitting had been investigated to date by the county society. Although no action had been taken, he is reported to have said that there "will have to be a number of trials." He advocated the sending of a joint itemized bill by physicians and specialists working on the same case "indicating how much each doctor would receive." One commissioner is reported to have observed that the plan seems "just a device for legalizing kickbacks." Dr. Kaliski, in reply, said that his plan was "the very opposite of kickbacks," asserting that such a plan is needed, particularly among the lower income groups in which the surgeon's fee, "usually rather high," is paid, whereas the family doctor often waits in vain for his payment.

Inter-Racial Policy Adopted at Sydenham Hospital.—A voluntary inter-racial policy has been adopted by Sydenham Hospital, providing for the first time in Harlem this type of hospital having all the rights and privileges of other voluntary hospitals in New York, such as tax exemption, support by the city, support from the Greater New York Fund and United Hospital Fund, and taking its place on a parity with New York's eighty-six other voluntary hospital institutions. The hospital will be staffed by Negro as well as white persons and directed by a hospital board composed of Negro and white persons. The new policy assures the use of the hospital facilities to all persons regardless of race, religion or national origin. It will be so organized as to provide qualified Negro physicians through staff positions with opportunities to hospitalize and care for their own patients and to improve their own medical competence. Private or ward accommodations will be provided according to the patient's ability to pay. According to a release, this hospital will become the first hospital which adheres to and proclaims the principle of inter-racial equality in hospital service in all its phases. The organization committee of the project is sponsored by the New York Urban League, Inc. Under the plan there will be no limitation on the number or quota of Negro physicians who may become attached to the staff. The present staff of the Sydenham Hospital will remain, it was stated. The group also plans to work toward the integrating of Negro medical, nursing and technical personnel into all hospitals in New York City.

OHIO

Walter Hartung New Health Director of Toledo.—Dr. Walter H. Hartung, in 1940 acting city health director and for some time associated with the Toledo Board of Health, has been appointed health officer, succeeding Dr. Earl E. Kleinschmidt, resigned. The change was effective on December 1, newspapers reported. Dr. Kleinschmidt had held the position since Nov. 1, 1942. Dr. Hartung, who formerly was state health officer, for some time had been superintendent of medical relief bureau in the city health department.

Museum Establishes Award for Health Education.—The "Elizabeth Severence Prentiss Award for Outstanding Contributions to Health Education" has been established by the Cleveland Health Museum in honor of Mrs. Prentiss, who in 1940 gave her childhood home to house the museum. Mrs. Prentiss died, January 4, at her home in Glenallen, Cleveland, at the age of 79. Her gifts to hospitals, including St. Luke's Hospital, Cleveland, and the Allen Hospital, Oberlin, were in memory of her first husband, Dr. Dudley Peter Allen, who died in 1915. In Cleveland, the Allen Memorial Medical Library is another institution founded by her in his memory. The first recipient of the award will be announced at the fourth annual meeting of the museum, in November 1944. The creation of the award was announced as a feature of the third anniversary of the museum, Nov. 22, 1943, at which Dr. James A. Doull, professor of hygiene and public health, Western Reserve University School of Medicine, Cleveland, spoke on

"Health in Australia and New Zealand at War." The Cleveland Health Museum was the first health museum established in the country. In a review of its activities during its existence, Dr. Howard Lester Taylor, Cleveland, president, stated that the museum's traveling exhibits have taught health facts to 750,000 people in 16 states and Canada. More than 2,700 health questions have been answered by the American Medical Association via the Museum Question Box. The Junior Health Club directs the energies and curiosity of 8 to 16 year olds in the ways of healthful living through quiz bees, treasure hunts and dramas. Thirty-two interns have received certificates indicating completion of the museum's course in health education by visual means. Its workshops have constructed exhibits for health agencies throughout the United States. Increasing requests make expansion of the workshops an immediate necessity.

PENNSYLVANIA

Seibert Memorial Prize Awarded.—Dr. Robert Denison, Harrisburg, president of the Harrisburg Academy of Medicine, was recently presented with the Seibert Memorial Prize of $500 during the annual dinner dance of the academy members at the Penn-Harris Hotel, Harrisburg. The award was established in memory of the late Dr. William Seibert by his sister and was originally intended for study abroad. It is given every two years to a member of the academy who has done notable work.

Philadelphia

Personal.—Dr. D. Olan Meeker, medical director of the National Drug Company, has resigned to become medical consultant of the Ethical Products Division of the Ferry-Hanly Company, New York advertising agency.

Fifty Years of Medicine.—On January 11 the state society will present testimonial certificates to the following members of the Philadelphia County Medical Society who have been in practice fifty years or more and who have not been previously honored:

Dr. Burton Chance Sr.
Dr. Edward V. Clark.
Dr. Clarence P. Franklin.
Dr. Edward S. Gifford Sr.
Dr. Edward Horgan.
Dr. Henry D. Jump.
Dr. Frederick Krauss.
Dr. Julius D. Love.
Dr. George W. MacKenzie.
Dr. George H. Moore.
Dr. William S. Newcomet.
Dr. William R. Nicho'son.
Dr. Charles H. Reckefus Jr.
Dr. Walter Roberts.
Dr. Desiderio Roman.
Dr. Arthur A. Stevens.
Dr. Oliver Stout.
Dr. Maria C. Walsh.

SOUTH CAROLINA

Dr. Wilson Resigns as Dean.—Dr. Robert Wilson, dean of the Medical College of the State of South Carolina, Charleston, since 1908 and associated with the school since 1893, has resigned. He will be succeeded by Dr. Kenneth M. Lynch, who has been serving as assistant dean since 1935. Dr. Wilson was born in Stateburg on Aug. 23, 1867 and graduated at the Medical College of the State of South Carolina in 1892. The following year he joined the staff as instructor in bacteriology, a position he held until 1905. He was adjunct professor from 1901 to 1903 and has been professor of medicine since 1905. He was president of the South Carolina Medical Association, 1904-1905, of the Southern Medical Association, 1915-1916, and of the Tri-State Medical Association of the Carolinas and Virginia, 1927-1938. Dr. Lynch was instructor in pathology at the University of Pennsylvania School of Medicine, Philadelphia, from 1911 to 1913, when he went to South Carolina as professor of pathology. He resigned this post in 1921 to engage in private practice in Dallas but returned to the school in 1927. Dr. Lynch has been the recipient of numerous scientific awards for his research. He has been chairman of the state board of health since 1940 and of the state cancer commission since 1939. He was president of the American Society of Tropical Medicine, 1929-1930, and of the American Society of Clinical Pathologists, 1930-1931, serving in the same period as president of the state medical association.

VIRGINIA

Personal.—Dr. Arthur D. Hutton, Marion, has been named acting superintendent of the Lynchburg State Colony, Colony. He succeeds Dr. George B. Arnold, who resigned effective January 1.——Dr. William Y. Garrett, Eastville, was recently appointed health officer of Newport News, succeeding Dr. Willard W. Griggs, who resigned to enter private practice in Coleland Park.——Dr. John B. Fisher was recently presented with a silver service and purse by a committee representing citizens of Midlothian, in honor of his completion of fifty years of service in the community.

GENERAL

Planned Parenthood Federation.—The twenty-third annual meeting of the Planned Parenthood Federation of America will be held at the Waldorf-Astoria, New York, January 25-27, under the presidency of Dr. John H. J. Upham. The themes of the various sessions will be "Planned Parenthood—State by State," "Parenthood as Young America Wants It" and "New Horizons for Planned Parenthood." At the dinner meeting the subject for discussion will be "Is Overpopulation a Threat to Permanent Peace?"

Special Society Elections.—Dr. William V. Watson, Toronto, Ont., is the new president of the American Therapeutic Society, elected November 15, and Dr. Oscar B. Hunter, Washington, D. C., secretary.——Dr. Edgar G. Ballenger, Atlanta, was chosen president-elect of the Southern Medical Association at its recent meeting in Cincinnati.——Dr. Alton Ochsner, New Orleans, was elected president of the Southern Surgical Association at its annual meeting in New Orleans recently. Other officers include Drs. John Lucius McGehee, Memphis, Tenn., and John M. T. Finney Jr., Baltimore, vice presidents, Alfred Blalock, Baltimore, secretary and Charles A. Vance, Lexington, Ky., treasurer.

New Lectureship on Infertility.—An anonymous donor has endowed a lectureship with a fund of 1,000 guineas, the interest of which is to finance every second year alternately a lecture by a member of the Royal College of Obstetricians and Gynecologists on the subject of infertility and by an obstetrician or gynecologist from the United States on any topic selected by him. This would mean that an invitation to an American participant would be possible every fourth year and the honorarium would amount to about £70, or the equivalent of some $300. The Royal College of Obstetricians and Gynecologists was founded in 1929 by Dr. William Blair Bell of Liverpool, who was its first president, with Sir William Fletcher Shaw of Manchester as secretary. The latter, after having served as president for the past five years and being knighted, is now retiring from office and is being succeeded by Dr. Eardley L. Holland of London. The endowed lectureship commemorates Sir William Shaw's presidency, and the anonymous donor wishes to demonstrate and further the friendship felt by English colleagues toward the American profession. The anonymous donor is a fellow of the Royal College of Obstetricians and Gynecologists.

Annual Report of Carnegie Corporation.—A total of $2,562,900 was expended by the Carnegie Corporation of New York during the fiscal year 1942-1943. The income for the year was $4,114,552.56 in the main endowment fund applicable to the United States and $355,288.12 applicable to the British Dominion and Colonies. During the year 478 proposals were considered by the corporation, of which 79 received favorable consideration, 376 were declined, 21 were carried over for consideration in 1943-1944 or later and 2 were withdrawn. During the year grants went to insulin research, an experimental program in North Carolina on human biology, development of work in genetics and research in embryology at Johns Hopkins University, Baltimore, to the National Research Council for the emergency support for the division of medical sciences, this project receiving $17,000, to the New York University College of Medicine for medical research at the Welfare Hospital for Chronic Diseases, New York, and to the Social Science Research Council for administrative expenses and the study of foster children with particular reference to heredity and racial characteristics and for publication of results of this study, to Vanderbilt University School of Medicine, Nashville, Tenn., for work in mental hygiene and to the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C., for the support of the department of medical genetics. The Carnegie Corporation of New York has been interested in dental education, support going to projects at the University of Rochester School of Medicine and Dentistry, New York, and to the recently established Harvard School of Dental Medicine. Under the auspices of the Colonial Office in London, sixty British subjects were awarded grants-in-aid for travel and study, predominantly in the fields of agriculture, medicine, education and forestry.

CORRECTION

Sulfadiazine Instead of Sulfamerazine.—In THE JOURNAL, Dec. 18, 1943, page 1035, in the article by Kasselberg, the last word in footnote 5 should have read "Sulfadiazine" instead of "Sulfamerazine."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 4, 1943.

Occupational Therapy for Men Disfigured by War Injuries

A frequent result of war injuries is gross disfigurement, such as follows the severe burns sustained when airplanes catch fire. The restoration of the patients to economic independence is a difficult and tedious undertaking, often entailing operations which may be spread over two years. Added to the physical injuries there may be severe mental depression. The majority of the patients are young and vigorous adults who have never troubled about illness of any kind and find themselves disfigured for life. Unprepared mentally for such a blow, they may become depressed, morose and pessimistic, and it may be difficult to convince them that they can be of any use in the world. For their employment it was necessary to secure the cooperation of industrialists. For the men of the Air Force a scheme of interim employment was arranged with the Ministry of Aircraft Production, by which they work a prescribed number of hours at work carefully chosen to suit the individual case. The men work a prescribed number of hours at selected jobs and do so in uniform. The work is of a remedial nature and the man is stimulated by the fact that it is of national importance. It helps at an early stage to break down the inferiority complex he is prone to feel when first mixing with his fellow men. It is interesting that within the factory much interest is taken in the progress of the patients not only by the management but by the other workers.

So successful has the scheme proved that it was decided to introduce it while the patient was in hospital, to take the place of the conventional occupational therapy, such as leather work, basket weaving and mat making. A remedial industrial workshop in the form of a small scale factory for the assembly of aircraft precision instruments was installed. Machine tools were installed, such as drills, lathes and presses, with benches for 25 workers. Some parts are made at the workshop and others are brought weekly from the parent factory and assembled by the working patient under the direction of a skilled head technician assisted by girl workers, one of whom sits at each bench as an instructress to 5 patients. The work is interesting and of great remedial value, particularly for crippled hands. The work is entirely voluntary, though for the treatment of loss of muscular tone and joint stiffness it ranks as an essential part of therapy. The rapid physical and mental improvement and the surprising productive capacity of the factory have aroused their enthusiasm.

The Medical Care of the War Worker

Under the emergency hospital scheme, established as a war measure, hospitals all over the country have been upgraded and new ones created for the specialist treatment and rehabilitation of workers in war industries. At present essential workers who suffer from fractures, whether sustained at their work or not, are treated at 200 hospitals and clinics where there are special facilities dealing with these injuries. The Ministry of Health has decided to extend these facilities to other accident cases, such as dislocations, sprains, head injuries and severe burns. The extended service will not apply to minor injuries which do not need the advice of a specialist. Workers receiving treatment will, as under the existing fracture scheme, be expected to contribute to the cost if in a position to do so. Workers in many industries come under both the fracture scheme and the extended service. They include those engaged in ship building and ship repairing, building and civil engineering, mining, agriculture, fishing, public utilities, shipping and transport, as well as manual workers in all factories. Whole time civil defense workers are also covered.

Without such a nationally planned redistribution of hospital and specialist facilities a serious breakdown in the health services, resulting from the vast shifts of population, caused by the war effort, conscription, evacuation and air raids, could not have been avoided. But many of the improvements will probably become permanent after the war. The new arrangements carry medical care for war workers a stage further. Another contribution to this is the recent scheme to assist the early diagnosis of tuberculosis among war workers and to help in their cure. Early in 1942 physicians in the Clydeside area were asked to select for further investigation young workers in war industries whose health gave cause for concern. The scheme was later extended to other areas and to older workers. Those selected were referred to specialists for a thorough overhaul. Many who showed signs of exhaustion and debility due to overwork or of incipient disorders which might lead to a general breakdown of health were admitted to emergency hospitals. Others were sent to auxiliary hospitals for rest and convalescence. This experiment in preventive medicine has proved so successful as to warrant its extension. The health of the war worker has become an important factor in hastening victory.

Improved Health of the Country During the War Continues

The improved health of the country during the war has been reported in previous letters. At a press conference Sir Wilson Jameson, chief medical officer of the Ministry of Health, said that on entering the fifth year of the war the health of our people was extraordinarily good. The provisional September quarter figures for the birth rate show that it is still rising, and the final rate is expected to be the highest for this quarter since 1930. Infant mortality, a sensitive index of the health of the country, is, if not the lowest ever recorded, equal to that. The death rate is expected to be the lowest for this quarter of any war year except 1942, when it was practically the same. The usual war increase of tuberculosis, previously reported, is absent in the latest figures. The deaths for the June quarter of this year, the latest available, are 5,297, against 5,540 in the same prewar quarter of 1939. There was a big wave of epidemic meningitis during the early years of the war, but this year there has been a great decline and we are getting back to the prewar position. The figure for typhoid was extraordinarily low, 637 cases from the beginning of the year up to October 23, against 730 for the same period of 1942, 4,460 of 1941, 2,619 of 1940 and 1,262 of 1939. A decline in the number of cases and of deaths from diphtheria continues. Diphtheria immunization is being continued steadily and successfully. We have now reached the position where more than 50 per cent of the children under 15 have been immunized. The aim of the ministry is at least 75 per cent.

Copley Medal of the Royal Society Awarded to Sir Joseph Barcroft

The Royal Society has awarded the Copley medal to Sir Joseph Barcroft, emeritus professor of physiology in the University of Cambridge and now head of a research unit established there for his investigations on the respiratory function of the blood, which occupy a central position in his life work. Their record is one of steady purpose and unbroken progress over forty-five years and they have played a great part in recent advances in physiology, biochemistry and medical science. With great determination and ingenuity he applied himself to a study of the changes of oxidative metabolism which accompany the secretory activity of the salivary glands. His researches grew and developed in logical sequence in relation to the specific activity in the kidney, muscles and other organs.

His work ranks him with his great predecessors of the Royal Society: Boyle, Hooke, Mayow, Lower, Hales, Priestley and John Scott Haldane, who received the Copley medal nine years ago. It was by the work of these men that our knowledge of the changes which occur in respiration was built up. The influence of Barcroft's researches has extended to physiologists all over the world, and they have become the starting point of further work.

PALESTINE

(From Our Regular Correspondent)

Oct. 29, 1943.

Palestine's Gift to Soviet Russia

Having overcome all the various difficulties which had for many weeks held up shipment of ambulances and medical supplies to Soviet Russia, the V League in Palestine was able recently to dispatch a second shipment to Teheran. The first shipment contained quantities of bromides, absorbent cotton and vaccines, while the second included (1) three ambulances, one of them being a mobile field hospital, each complete with medical and sanitary equipment for 14 beds (the equipment consisting of 42 articles totaling 1,280 items), (2) 1 ton of bromides, (3) two hundred thermometers, (4) sets of surgical instruments, (5) olive oil and phenolated soap, (6) two typewriters and (7) two fonts of linotype intended for use by the Jewish Anti-Fascist Committee in Kubeishov. The two typewriters are the gift of the General Federation of Jewish Labor in Palestine. The linotype equipment is the gift of the V League in Palestine.

Tuberculin Test of All Personnel Engaged in Children's Houses

The Anti-Tuberculosis League, the Hadassah Medical Association and the Kupat Holim (Workers' Sick Fund of the General Federation of Jewish Labor in Palestine) have recently intensified their efforts to combat tuberculosis in this country. An investigation was conducted by two Kupat Holim physicians, Dr. Hupert and Dr. Nassau, in the agricultural cooperative settlements among personnel in charge of the care and health of children, which revealed that 94.2 per cent were completely healthy, 2.7 per cent had inactive tuberculosis, another 2.7 per cent, though affected and in need of observation, did not require treatment, and 0.4 per cent were tuberculous and did require treatment. This proportion of affected persons is somewhat lower than in other countries, according to the published figures. The reason probably lies in the fact that the bulk of the persons examined in this investigation had been living a rural life for a considerable time and that their ages ranged between 16 and 30.

Bean Disease (Favism)

Favism is a disease which appears in the form of typical attacks of acute hemolytic anemia. Whenever a particularly sensitive person comes into contact with fave beans—at present their pathogenicity is explained by the allergic theory—he shows signs of the disease, either as the result of having eaten the beans or of having inhaled the pollen at the time of flowering. The pathogenic principle remains in the dried bean as well, even after prolonged cooking.

The first case of favism here was brought before Dr. Shieber at Beilinson Hospital, a Kupat Holim institution. Later, Dr. Robinson reported 3 cases seen in the Hadassah Hospital, and Dr. Genezzani of the Children's Department in the Hadassah Hospital in Tel Aviv has recently published an article in *Refuah* on 10 cases which he has treated in the past three years.

The disease was known in ancient times in all Mediterranean countries, but systematic, scientific investigation did not begin until the second half of the last century. Physicians of the Italian islands of Sardinia and Sicily were the first to carry out these investigations and thought that the disease was restricted only to these places. But with the increased interest in favism among the physicians of other countries it was found that the disease is spread to all Mediterranean countries, including Palestine.

Statistical investigations showed that the disease affects chiefly males (80 per cent), that it is chiefly a disease of children, that most cases occur in the spring, that it is more common among certain races (Arabs and related races, Sephardic Jews, Yemenites) than others, and that, finally, it has some connection with malaria.

The disease usually has a benign course; the attack passes in about a week with complete recovery by means of active regeneration of the hemolyzed blood, though fatal cases have been reported. The most effective form of treatment is blood transfusion.

Scientific Conferences

At an all Palestine Conference of Children's Doctors, which took place in March, the principal subjects under discussion included chemical treatment of stomach and intestinal diseases in children, allergic skin diseases in children, bronchial asthma in children, cryptorchism and problems of toxicosis. A number of military doctors participated in the discussion and read papers on infectious diseases of the brain in children and neurosis in children. The lectures on chemical treatment of stomach and intestinal diseases emphasized the great value of sulfathiazole and sulfaguanidine in the treatment of diarrhea and toxicosis in children. Mortality among children from this disease has dropped from 50 per cent to 11.7 per cent as a result of these drugs. The doses were 0.1 Gm. per kilogram of the patient's weight daily for a period not exceeding five to eight days.

In June 1943 a Dermatologists' Conference was held, and the main subjects discussed were, among others, the physiology of the vitamin B complex, avitaminosis, allergy of the skin, the treatment of syphilis and leishmaniasis of the skin.

Shortage of Physicians and Nurses in Palestine

The shortage of physicians and nurses has recently become acute. One of the main reasons for this situation is the fact that many have volunteered for the various military services. Up to the present time, over two hundred Jewish doctors have joined the British army, and many more are waiting to be called.

Jewish doctors in Palestine are enlisting for all the services, including combatant units, as well as for service throughout the British Empire, Abyssinia, India and elsewhere. The volunteers include a large number of physicians on the permanent staffs of Kupat Holim and Hadassah. Twenty-five of these were attached to Kupat Holim alone.

The shortage of nurses, and particularly of midwives, is even more serious. The nonavailability of nurses is seriously impeding the extension of medical institutions, especially of Kupat Holim, which has opened new wings during the past year (30 surgical beds at Petach Tikva, 30 beds for maternity cases in Rehovoth, a new children's department of 40 beds in the Afuleh Hospital and the addition of 20 beds to the department for internal diseases at the Beilinson Hospital).

The nurses' schools attached to the Hadassah and Beilinson hospitals have accepted an increased number of students, and a number of new schools for nurses will shortly be opened in other hospitals. In the meantime the medical institutions are compelled to take on some nonqualified nurses.

The large scale enlistment of the Jewish community in Palestine (20,000 soldiers and A. T. S. serving with the army and 10,000 in the defense forces of Palestine) has made itself felt in all spheres of life and work in the country. Not only professions and trades but even unskilled labor are affected. Nevertheless the people, and among them the physicians, continue to volunteer.

Deaths

Alexander Earle Horwitz, St. Louis; Washington University School of Medicine, St. Louis, 1904; instructor in orthopedic surgery, St. Louis University School of Medicine, from 1910 to 1913, assistant professor from 1913 to 1933 and since the latter year associate professor of orthopedic surgery; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; major, medical reserve corps, U. S. Army, not on active duty; assistant orthopedic surgeon, O'Fallon Dispensary, from 1908 to 1910, and the Washington University Hospital, 1909-1910; orthopedist, St. Louis City Hospital, since 1910 and Rebekah Hospital from 1910 to 1914; associate orthopedist, St. John's Hospital, from 1912 to 1926 and since 1926 orthopedist; visiting orthopedist, Robert Koch Hospital; orthopedist, St. Anthony's Hospital from 1921 to 1928 and St. Mary's Group of Hospitals since 1924; director of orthopedics, St. Louis City Hospital for the Colored, since 1935; assistant orthopedic surgeon from 1911 to 1916 and since 1927 associate orthopedist, Jewish Hospital, where he died November 30, aged 65, of pyelonephritis.

Georgine Maria Luden ✠ Victoria, B. C., Canada; Ludwig-Maximilians-Universität Medizinische Fakultät, Munich, Bavaria, Germany, 1912; member of the Minnesota State Medical Association, American Association for Cancer Research, Association for the Study of Internal Secretions, Medical Women's International Association, American Association for the Advancement of Science, International Association of Medical Museums and the Association of Resident and ex-Resident Physicians of the Mayo Clinic; formerly associate in cancer research at the Mayo Clinic, Rochester, Minn.; received a Ph.D. in pathology from the University of Minnesota in 1920; died November 20, aged 68, of carcinoma of the lung and tuberculosis.

Charles Curtis Jones ✠ Cincinnati; Ohio-Miami Medical College of the University of Cincinnati, 1910; specialist certified by the American Board of Otolaryngology; at one time assistant professor of otolaryngology at the University of Cincinnati College of Medicine; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; in charge of the medical division of civilian defense for Norwood and for many years a member of the board of health; served on the staffs of the Christ Hospital, Children's Hospital and the Bethesda Hospital, where he died November 22, aged 56, of pneumonia.

Dexter D. King ✠ York, Neb.; University of Nebraska College of Medicine, Omaha, 1914; past president of the Nebraska State Medical Association and the York County Medical Society; for one year honorary president of the Elkhorn Valley Medical Association; formerly councilor of the Sixth District Medical Society; served during World War I; for one term a member of the school board; affiliated with the York Clinic; on the staff of the Lutheran Hospital; president of the local Rotary Club, 1930-1931; served as a national director of the alumni association of the University of Nebraska; died November 27, aged 59, of cardiovascular renal disease.

George Buchanan Kryder ✠ Glendale, Calif.; University of Illinois College of Medicine, Chicago, 1920; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; child hygiene physician, health department of Los Angeles County; served in the medical corps of the U. S. Army during World War I; on the staffs of the Los Angeles County and Children's hospitals, Los Angeles, Physicians and Surgeons Hospital and the Glendale Sanitarium and Hospital; died November 19, aged 50, of coronary thrombosis.

Franklin Davis Wilson ✠ Norfolk, Va.; University of Maryland School of Medicine, Baltimore, 1908; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; fellow of the American College of Physicians; past president of the Norfolk County Medical Society; also a pharmacist; at one time a member of the county school board; on the staffs of the St. Vincent's Hospital, Leigh Memorial Hospital and the Norfolk General Hospital, where he died November 17, aged 61, of cerebral hemorrhage.

James Anthony Bach ✠ Milwaukee; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1884; formerly professor of ophthalmology and otology, Wisconsin College of Physicians and Surgeons and the Marquette University School of Medicine; fellow of the American College of Surgeons; served on the staff of St. Mary's Hospital, where he died November 29, aged 83, of cerebral thrombosis.

Orrie Hugh Ball, Dennis, Kan.; University Medical College of Kansas City, Mo., 1900; member of the Kansas Medical Society; on the staffs of the Mercy Hospital, Parsons, and the Johnson Hospital, Chanute; died November 2, aged 72, of generalized arteriosclerosis.

Roger Biswell, Baker, Ore.; Willamette University Medical Department, Salem, 1906; member of the Oregon State Medical Society; served during World War I; on the staff of St. Elizabeth Hospital, where he died November 12, aged 62, of angina pectoris.

Walter T. Christensen, Seattle; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1905; member of the Washington State Medical Association; for five terms a member of the state legislature; formerly on the staffs of the Providence and Columbus hospitals; died November 10, aged 65, of cerebral hemorrhage.

Walter Roy Liddell Coakley, Buffalo; Albany (N. Y.) Medical College, 1913; on the staff of Our Lady of Victory Hospital, Lackawanna; died November 3, aged 57, of cirrhosis of the liver.

Lewis Morgan Daniel ✠ Minneapolis; University of Minnesota Medical School, Minneapolis, 1923; formerly secretary-treasurer of the Hennepin County Medical Society; served on the staff of the Abbott Hospital; died in Pompano, Fla., November 23, aged 49, of aortic stenosis.

William Dietz, Rockford, Wash.; Atlanta College of Physicians and Surgeons, 1902; died October 15, aged 66, of pulmonary edema and hypertensive heart disease.

George W. Fahrenbach, Bernville, Pa.; Baltimore (Md.) Medical College, 1900; member of the Medical Society of the State of Pennsylvania; member of the county and borough school boards and the local draft board; died November 13, aged 70, of carcinoma.

Elman Parker Felch, Centerville, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1893; died November 8, aged 76, of uremia.

Eldon Marshall Findley ✠ Graham, Mo.; Harvard Medical School, Boston, 1916; formerly instructor in physiology at the University of Missouri School of Medicine, Columbia; on the staff of St. Francis Hospital, Maryville; died November 18, aged 62, of coronary thrombosis.

Arthur Emile Gadbois, Norfolk, Neb.; John A. Creighton Medical College, Omaha, 1903; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; served as ophthalmologist for the Chicago and Northwestern Railway Company; a captain in the medical corps of the U. S. Army during World War I; on the staffs of the Lutheran and Our Lady of Lourdes hospitals; died November 19, aged 68, of coronary embolism.

James Arthur Gage, Lowell, Mass.; Harvard Medical School, Boston, 1885; member of the Massachusetts Medical Society and the New England Surgical Society; fellow of the American College of Surgeons; member of the House of Delegates of the American Medical Association in 1908 and 1910; served on the staff of the Lowell General Hospital; died November 29, aged 85, of pneumonia.

John Augustus Herring ✠ St. Petersburg, Fla.; University of Michigan Medical School, Ann Arbor, 1916; member of the Radiological Society of North America, Inc.; served as chief of staff, St. Anthony's Hospital; died November 17, aged 52, of coronary occlusion.

John Inglis ✠ Denver; Ohio Medical University, Columbus, 1895; Rush Medical College, Chicago, 1896; formerly member of the state board of medical examiners; author of "Chemistry in Abstract" (Encyclopedia Americana), Peking, 1906; on the staffs of the Mercy Hospital, St. Luke's Hospital and the Porter Sanitarium and Hospital, where he died November 20, aged 74, of pneumonia.

John Barlow James ✠ Page, N. D.; Northwestern University Medical School, Chicago, 1911; elected president of the Cass County Medical Society; served on the staffs of the Mercy Hospital, Valley City, Union Hospital, Maysville and St. John's Hospital, Fargo; died November 8, aged 56, of hypertension and cerebral hemorrhage.

William K. Jones, Wilmore, Ky.; Hospital College of Medicine, Louisville, 1897; member of the county health board; died in the Good Samaritan Hospital, Lexington, November 10, aged 71, of carcinoma of the prostate.

Jule Harrison Keller ✠ Lancaster, Mo.; Central Medical College of St. Joseph, 1900; served as county health officer; for six years county coroner; died November 23, aged 66, of heart disease.

Harry Thomas King, Minneapolis; Marquette University School of Medicine, Milwaukee, 1924; member of the Minnesota State Medical Association; examining physician, Hennepin County local draft board number 17; on the staff of the Lutheran Deaconess Home and Hospital; on the advisory board, member of board of governors and on the staff of St. Mary's Hospital, where he died October 10, aged 48, of fibrillation of the heart.

Lovick Pierce Longino, Milledgeville, Ga.; Atlanta College of Physicians and Surgeons, 1905; member of the Medical Association of Georgia and the American Psychiatric Association; recently resigned as superintendent of the Milledgeville State Hospital; died in the Emory Hospital, Atlanta, November 20, aged 64, of coronary occlusion.

Edwin Horner Lowe, Maryville, Tenn.; Medical Department of the Western University of Pennsylvania, Pittsburgh, 1892; member of the Medical Society of the State of Pennsylvania; veteran of the Spanish-American War; for many years physician for the Aluminum Company of America at Alcoa; died November 8, aged 73, of leukemia and intestinal hemorrhage.

Max Lubman, New York; Cornell University Medical College, New York, 1900; member of the American Academy of Ophthalmology and Otolaryngology; served in the outpatient department of the Mount Sinai Hospital; died November 20, aged 67, of coronary thrombosis.

Frederick Joseph Mayer, Opelousas, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1883; member of the Louisiana State Medical Society and president, 1913-1914; served as president of the Attakapas Medical Society, the oldest medical society in the state, in 1885; formerly special medical inspector for the Louisiana and Texas state boards of health; died December 1, aged 84.

William Taylor Miles, Louisville, Ky.; Louisville Medical College, 1892; member of the Kentucky State Medical Association; on the visiting staffs of St. Anthony's Hospital, Methodist Deaconess Hospital and the SS Mary and Elizabeth Hospital, where he died November 7, aged 75, of uremia.

James R. Miller, Stowell, Texas; Memphis (Tenn.) Hospital Medical College, 1897; died November 11, aged 75, of carcinoma of the neck and face.

Frederick R. Moessner, Madison, Wis.; Northwestern University Medical School, Chicago, 1904; died November 22, aged 66, of heart disease.

David Hubbell More, Long Beach, Calif.; Columbia University College of Physicians and Surgeons, New York, 1907; member of the California Medical Association; died in Beverly Hills, November 4, aged 65, of uremia due to carcinoma of the bladder.

David Hervey Morgan, Akron, Ohio; University of Wooster Medical Department, Cleveland, 1896; secretary of the Summit County Medical Society in 1912, vice president in 1913 and president in 1914; died in the Fair Oaks Villa Sanitarium, Cuyahoga Falls, November 11, aged 78, of cerebral hemorrhage.

Carlton D. Morris, Pontiac, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; at one time assistant in physiologic chemistry at his alma mater; formerly president of the Rotary Club; served on the staff of the Pontiac General Hospital, where he died November 28, aged 73, of carcinoma of the sigmoid with metastases.

Ralph Edward Munden, Cedar Rapids, Iowa; Milwaukee Medical College, 1909; member of the Iowa State Medical Society; died November 15, aged 56, of pneumonia and peritonitis.

Eryl Smith Peterson ✠ Jackson, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1907; served during World War I; past president of the Jackson County Medical Society; a member of the board of directors of the Ben Franklin Savings and Loan Association; died in Bradenton, Fla., November 17, aged 60, of coronary occlusion and arteriosclerosis.

William Peter Reckley, Youngstown, Ohio; Eclectic Medical College, Cincinnati, 1928; member of the Ohio State Medical Association; died in the Youngstown Hospital, North Side Unit, November 29, aged 40, of carcinoma.

Thomas Wesley Rennie, Chicago; Chicago College of Medicine and Surgery, 1917; died in the Veterans Administration Facility, Hines, Ill., November 29, aged 69, of hypertensive and coronary arteriosclerotic heart disease.

James Micaga Ringo, Houston, Texas; University of Louisville (Ky.) Medical Department, 1887; died October 28, aged 84, of pneumonia.

George Clovis Robert, Rossford, Ohio; McGill University Faculty of Medicine, Montreal, Que., Canada, 1897; served during World War I; formerly fire commissioner, and city physician of Holyoke, Mass.; at one time on the staffs of the Holyoke and Providence hospitals, Holyoke; died November 5, aged 70, of intestinal obstruction.

Isaac Poitevint Robinson, Shreveport, La.; Baltimore Medical College, 1897; at one time on the staff of St. Joseph's Hospital, Baltimore; died in a local sanatorium November 25, aged 82, of injuries and shock received when struck by a truck.

John Paul Rutherford, Bennington, Okla.; Chattanooga (Tenn.) Medical College, 1903; veteran of the Spanish-American War; died October 31, aged 63.

Gordon Joel Saxon ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1908; died in Carbon Run, Pa., October 20, aged 64, of cirrhosis of the liver.

James Edgar Shepherd, Hope Mills, N. C.; University of Louisville (Ky.) Medical Department, 1885; veteran of the Spanish-American War; died in the Presbyterian Hospital, New York, November 16, aged 81, of senile cataract and bronchopneumonia.

Louis Sam Smith ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1920; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; died October 23, aged 47, of brain tumor.

David Emmet Stafford, San Francisco; University of California Medical Department, San Francisco, 1903; member of the California Medical Association; for many years on the staff of St. Joseph's Hospital; died September 24, aged 65, of coronary disease.

Augustus Willard Tarr ✠ Johnston City, Ill.; Barnes Medical College, St. Louis, 1898; died November 23, aged 78, of cerebral hemorrhage.

Augustus Jerome Thomas, Shreveport, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1900; died October 31, aged 65.

Sidney Welles Thompson, Owego, N. Y.; University of the City of New York Medical Department, New York, 1896; member of the Medical Society of the State of New York; formerly mayor and village president; served during World War I; died in the Tioga County General Hospital, Waverly, October 29, aged 70, of cerebral thrombosis and arteriosclerosis.

DIED WHILE IN MILITARY SERVICE

Seale Harris Jr., Birmingham, Ala.; Johns Hopkins University School of Medicine, Baltimore, 1926; member of the Medical Association of the State of Alabama and the American Society for Clinical Investigation; fellow of the American College of Physicians; at one time assistant professor of medicine at the Vanderbilt University School of Medicine, Nashville, Tenn.; served as visiting physician at the Hillman and Baptist hospitals; major, medical corps, Army of the United States; for seven months head of an army base hospital in the Fiji Islands; second in command of an army base hospital in Brisbane, Australia; died in Brisbane, December 22, aged 43, of heart disease.

Joseph Eugene Seliady, Northville, Mich.; Detroit College of Medicine, 1932; member of the Michigan State Medical Society; served on the staff of the East Lawn Sanatorium; commissioned a captain in the medical corps, Army of the United States, on May 21, 1942 and recently promoted to major; died in Fort Sam Houston, Texas, November 19, aged 41, of peritonitis resulting from a bite.

Charles LaFayette Stevens ✠ Elmira, N. Y.; University of Buffalo School of Medicine, 1927; diplomate of the National Board of Medical Examiners; commissioned a lieutenant in the medical corps of the U. S. Naval Reserve on Feb. 11, 1941 and lieutenant commander on Oct. 1, 1942; died in the U. S. Naval Hospital, Pensacola, Fla., November 19, aged 39, of acute yellow atrophy of the liver.

Correspondence

"HAZARDS OF EXPOSURE TO GLASS WOOL, GLASS FRIT OR FOAM GLASS"

To the Editor:—This letter is written to comment on the inquiry from Dr. Jean Henderson and the answer regarding hazards of exposure to "glass wool" or "fiber glass," published in Queries and Minor Notes in THE JOURNAL, May 1, page 69.

The first fibrous glass made in the United States on a commercial scale was produced in my own state in 1934, in what are now the Newark, Ohio, factories of Owens-Corning Fiberglas Corporation. Since 1934 fibrous glass in the wool-like form commonly called glass wool has been produced continuously in these factories.

As chairman of the Committee on Industrial Health of the Ohio State Medical Association and as medical consultant for Owens-Corning Fiberglas Corporation, I have considerable personal knowledge of the health aspects of the manufacture of fibrous glass and of investigations in this field by independent medical authorities.

I do not have similar knowledge of the manufacture of foam glass or of the production of glass frit, but I do know that the processes are quite unrelated to those used in the manufacture of glass fibers or glass floss—the subject of Dr. Henderson's inquiry. Although the material sold as glass floss is not manufactured by the Fiberglas Corporation, the reply to Dr. Henderson embraces the whole range of products made of glass fibers and therefore comes within the scope of my experience.

This knowledge leads me to believe that that part of the answer which pertains to the health hazards of glass wool may be misleading to readers. In an effort to clear up any misconceptions which the answer may have been responsible for, I should like to review and comment on certain of the statements made in it.

The answer correctly states that the process of manufacture of glass fibers differs with the ultimate use contemplated for the fibers, but the description of the process employed in the manufacture of fibers for the wool-like form of fibrous glass is correct only for one type of glass textile fibers and is completely incorrect for fibers fabricated into the wool-like form—the material to which both question and answer refer.

This is unimportant, but the answer then lists the following as specific exposures: (1) the usual ill effects of high temperatures; (2) mechanical injuries from spicules of glass; (3) carbon tetrachloride or ether vapors, which chemicals are sometimes used to remove a mineral oil lubricant, at times applied to the glass fibers to promote disentanglement.

Exposure to high temperatures is common in a great number of manufacturing processes. In many industries it is almost as much a concomitant of factory work as is exposure to the heat of the sun a concomitant of the farmer's labors. Such exposure can become a hazard only under exceptional circumstances. No such exceptional circumstances are present in the manufacture of fibrous glass, and I have never before heard it suggested that exposure to high temperatures constitutes a hazard for such workers.

From time to time newly employed workers, unaccustomed to handling fibrous glass, have experienced a short period of discomfort due to a nondisabling and superficial mechanical irritation of the skin caused by spicules of glass. Such discomfort has usually lasted only a few days, passing as soon as the worker became used to handling the material.

During the spring and summer of 1942 Dr. Marion B. Sulzberger, assistant clinical professor of dermatology and syphilology, New York Post-Graduate Medical School, and Dr. Rudolf L. Baer, junior assistant dermatologist and syphilologist, New York Post-Graduate Hospital, carried out an experimental investigation of the effects of fibrous glass on the skin of laboratory animals and human volunteers.

Summarizing the results of the investigation, Dr. Sulzberger and Dr. Baer say:

> All of the reactions observed were of a transitory and superficial nature. The only part of the reactions which persisted for more than a few days were slight thickening and brownish pigmentation of the skin. The latter were sometimes apparent for several weeks. No reactions or symptoms outside the rubbed skin areas were observed at any time during the experiment.
>
> The pieces of material which were seen sticking into the skin after rubbing with Fiberglas in its wool-like form appeared to be very superficially embedded. This observation was borne out by the fact that ordinary washing with water easily removed a large part of the spicules remaining in the skin after rubbing.

A full report of the Sulzberger-Baer investigation was published in *Industrial Medicine* (**11**:482 [Oct.] 1942).

Neither carbon tetrachloride nor ether vapors are used for any purpose at any stage in the manufacture of fibrous glass in any of its forms. The manufacturers of fibrous glass supply other manufacturers with various fibrous glass products for incorporation in products which these manufacturers produce. For some highly specialized applications some of these other manufacturers may wish to remove the lubricant that is applied to glass fibers during the manufacturing process to prevent them from abrading one another, not, as THE JOURNAL answer states, "to promote disentanglement." Removal of the lubricant is rarely required.

Carbon tetrachloride or ether vapors are among the solvents that may be used to remove the lubricant from the fibers. Their employment, however, has no more connection with the manufacture of glass fibers and fibrous glass products than has the removal of paint from a chair to do with the manufacture of the chair.

THE JOURNAL answer states that it is doubtful whether any specific pneumonoconiosis is likely to arise from working with glass wool. That no such pneumonoconiosis can arise is indicated by the following statement by Dr. Leroy U. Gardner, director of the Edward L. Trudeau Foundation for Research and Teaching in Tuberculosis:

> Exposure to the dust of glass wool, a material commonly used to insulate buildings, involves no hazard for the lungs because this fibrous material is not inhalable.

This statement by Dr. Gardner appeared in the 1941 report of the director of the Trudeau Foundation and followed an investigation of the effects of exposure to glass wool dust conducted by Dr. Gardner over a period of several years.

Finally, I should like to point out that no claim for workers' compensation based on a pulmonary industrial disease, or disability resulting from an occupational skin disorder attributable to fibrous glass as differentiated from other materials, has ever been validated in the state of Ohio, where manufacture has been centered since 1934.

A list of references is appended.

Gardner, Leroy U.: Report of the Director of The Trudeau Foundation 1941, in the Fifty-Seventh Annual Medical Report of the Trudeau Sanatorium and the Thirty-Seventh Medical Supplement For the Year Ending September 30, 1941.

Sulzberger, Marion B., and Baer, Rudolf L., with the technical assistance of Lowenberg, Clare, and Monzel, Hildegard: The Effects of Fiberglas on Animal and Human Skin—Experimental Investigation, Indust. Med. **11**: 482 (Oct.) 1942.

Schwartz, Louis, and Botvinick, Isadore: Skin Hazards in the Manufacture of Glass Wool and Thread, ibid. **12**: 142 (March) 1943.

Siebert, Walter J.: Fiberglas Health Hazard Investigation, ibid. **11**: 6 (Jan.) 1942.

Hazard, W. G.: Transcript of Remarks on Health Aspects of Fiberglas Materials, Excerpt from the Proceedings of the Rhode Island Industrial Health Institute, May 19, 1943. Copies available on request to Division of Industrial Hygiene, Rhode Island Department of Health, Providence.

Lewison, Edward F.: Rayable Gauze as a Factor of Safety in Surgical Operations, Bull. Am. Coll. Surgeons **27**: 39 (Jan.) 1942.

Scholz, Roy Philip, and Mountjoy, Philip S.: Fiberglas Suture Material, Am. J. Surgery **56**: 619 (June) 1942.

Rogers, Tyler Stewart: Safe Practice in the Manufacture and Uses of Fiberglas Issued as Safe Practice Bulletin No. 58 (February 1940) in the Occupational Disease Prevention Series published at Harrisburg by the Pennsylvania Department of Labor and Industry.

Kaiser, Hubert D.: Use of Fibrous Glass by the Army and Navy, Mining Technology **7**: 1 (May) 1943), Technical Publication No. 1598 (Class H, Industrial Minerals Division, No. 107).

Fibrous Glass Insulation: Health Aspects of, Memorandum dated Dec. 30, 1942 from the Chief of the Bureau of Ships and the Chief of the Bureau of Medicine and Surgery, Navy Department, to The Commandants, All Naval Districts; The Commandants, All Navy Yards; All Supervisors of Shipbuilding, U.S.N.; The Commanding Officers All Tenders and Repair Ships; All Industrial Managers, U.S.N. References: (a) BUSHIPS 1 tr. S38-1(3638) of Nov. 23, 1942. (b) BUMED 1 tr. FS/S38-1(103) of Dec. 18, 1942.

B. J. HEIN, M.D., Toledo, Ohio.

INTENSIVE TREATMENT OF SYPHILIS

To the Editor:—I have recently observed a case of clinical and serologic relapse occurring within one month after the patient had been given the five day treatment for syphilis under the direction of an officer of the United States Public Health Service. I have been informed of a probable neurorelapse following the administration of penicillin in a case of early syphilis. I am reminded also of the epidemic of early neurosyphilis which occurred in Europe almost immediately following the introduction of arsphenamine.

When we consider the action of some of our newer chemical compounds, including penicillin, which are used in the treatment of early syphilis and some of which, like penicillin, gain access slightly if at all to the cerebrospinal fluid, we should keep in mind the early experience with arsenicals. Every effort should also be made to guard against those previous disastrous results, particularly in view of the fact that, had we known then what we know now, most of the hundreds of cases which occurred in 1910-1912 could easily have been prevented. (For references see the several books on arsphenamine edited by Ehrlich as well as numerous articles on the neurorecidiv which appeared in European medical journals of that period. Also the collection of 212 cases published by Bernario in 1911 in the book Ueber Neurorecidiv. Not all of the cases collected by Bernario followed the administration of arsphenamine.)

Many will recall the heated discussion which took place between the Vienna school headed by Professor Finger and the Berlin group led by Professor Ehrlich concerning this matter. The question was definitely settled in 1913. Without entering into a lengthy discussion of the facts which settled the dispute, since that would lead to detailed consideration of Treponema pallidum, as well as the question of immunity in syphilis and the adequate treatment of the disease, suffice it to say that the cause of the appearance of so many cases of early neurorelapse was the inadequacy of the treatment of the infection and not the direct action of the arsenical, as Professor Finger first maintained.

The crux of the matter is that, if early syphilis is to be treated efficiently, it should be treated not only with a view to arresting its infectiousness, which obviously is of major importance, but also with a view to the protection of the future of the individual per se.

Our newer remedies offer the prospect that the infectiousness can be checked promptly, but they do not offer a certain prospect that complete sterilization can be produced. Indeed, it appears from the properties and actions of some of these chemical agents quite probable that they will not completely sterilize, when we consider the pathogenesis of the disease process and the fact that these drugs, by rapidly destroying many of the organisms, do by this action materially lower a very essential factor in cure—the patient's immunity.

The general practitioner, who must of necessity treat the disease, and the syphilologist, who treats a limited number of cases, should proceed cautiously in adopting any of the newer methods until the larger facilities have more definitely determined the real worth of these methods. Although it will take some time before this can be settled, combined chemotherapy and fever may be at least one of the means of effecting an early biologic cure. The former, although powerfully treponemicidal, indirectly suppresses immunity, while the latter enhances it.

Let us not make the identical mistake which Professor Ehrlich made in the early part of the arsphenamine period. It will be forever to his credit, however, that he was the first to recognize this mistake and to correct it. In other words, if we are to use any of the various "rapid cures," let us strive actually to cure by as safe a proceedure as possible and by a close and careful follow-up, if we use a method that we know retards or prevents the patient's immunity. Already too many patients have been sacrificed.

It is not probable that a great number of cases will appear, since most of the new methods are more efficient than a dose or two of arsphenamine, which was largely responsible for the early outbreak. As we now know the cause and the prevention, we are equipped to forestall a recurrence of a disastrous episode.

WILLIAM H. HOUGH, M.D., Washington, D. C.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Jan. 1, page 123.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Jan. 17-19. *Part III.* Various centers, January. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral. Part II.* Chicago, June 12-16. Final date for filing application is March 12. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various large cities, May 8. *Oral.* Chicago, June 9-10. Final date for filing application is April 1. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part II.* June 7-13. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6, Pa.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 5-7. Sec., Dr. S. Judd Beach, P. O. Box 1940, Portland, Me.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Written and Oral. Part II.* Chicago, Jan. 21-22. Sec., Dr. Guy A. Caldwell, 3503 Prytania St., New Orleans, La.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* New York City, June 1-4. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Feb. 4. *Oral.* Philadelphia, March 25-26, and San Francisco, May 6-7. Sec., Dr. C. A. Aldrich, 115½ First Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Written.* Various centers, March 31. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, Feb. 15-17. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Validity of Board's Rules Respecting Advertising.—The Michigan state board of dentistry adopted six rules, in the main prohibiting the splitting of fees and regulating advertising by licensed dentists. Several licensed dentists, including the plaintiff, Toole, filed suit to prevent the board from enforcing those rules, alleging that the rules were null and void because they either exceeded the power granted the board by the dental practice act or, if authorized by the act, were the result of an unlawful delegation of legislative power to the board. The Michigan state dental society intervened in the action. The trial court dismissed the suit, and the plaintiffs appealed to the Supreme Court of Michigan.

In testing the right of the board to adopt the rules in question, said the Supreme Court, it must be borne in mind that the Michigan dental practice act puts the practice of dentistry under the supervision of the board and gives it the power to "adopt rules and regulations for its own organization and for the practice of dentistry . . . and for carrying out the provisions of this act." We must also be guided by our previous decisions germane to the construction of the act in this regard. For instance, in *Argo Oil Corporation* v. *Atwood*, 274 Mich. 47, 264 N. W. 285, we said:

> It is too well settled to need the citation of supporting authorities that the Legislature, within limits defined in the law, may confer authority on an administrative officer or board to make rules as to details, to find facts, and to exercise some discretion, in the administration of a statute.

Again, in *Sullivan* v. *Michigan State Board of Dentistry*, 268 Mich. 427, 256 N. W. 471, we said:

> It is not to be presumed that the board will adopt any rules and regulations for the practice of dentistry that do not meet the test of constitutionality.

We must also remember, as was said in *Johnston* v. *Board of Dental Examiners*, 77 U. S. App. D. C. 119, 134 F. (2d) 9, that

> The regulations of the Board are valid so long as they are not unreasonable or abitrary. If any doubt exists as to their invalidity, they must be upheld.

The first rule adopted by the board in effect prohibited any person from splitting or dividing with any other dentist or layman any fees earned in rendering any dental service, provided that the rules should not be interpreted to prevent an employer from paying an employee. The plaintiffs claimed that the enforcement of this rule would prevent partnerships in the practice of dentistry. It is to be noted, said the Supreme Court, that the dental practice act prevents the practice of dentistry by corporations, but nowhere in the act do we find such practice by partners prohibited, nor do we interpret the first rule as preventing such practice by partners. The rule was aimed at the splitting of fees between dentists or between a dentist and a layman. We do not find the rule running counter to the purposes of the framers of the legislation.

The second rule adopted by the board of dentistry prohibited a dentist from using a sign employing a background of more than 300 square inches or using letters thereon of a size greater than 5 inches. Section 17 of the dental practice act, said the court, makes it unlawful to advertise by means of large display signs, or glaring light signs, electric or neon, or such signs containing as part thereof the representation of a tooth, teeth, bridgework, plates of teeth or any portion of the human head, or to use specimens of such in display, directing the attention of the public to any such person or persons engaged in the practice of dentistry. In *Modern System Dentists* v. *State Board of Dental Examiners*, 216 Wis. 190, 256 N. W. 922, it was held that a rule prescribing a maximum of 600 square inches for a dentist's sign outside his office building and the maximum size of letters thereon was within the authority of the state board. In our opinion a rule that permits a maximum of 300 square inches is a matter that lies in the sound discretion of the rule making body and is within the power granted by the statute.

The third rule adopted by the board prohibited the use of more than one outside sign. We are in accord, said the Supreme Court, with the reasoning of the trial court in upholding this rule:

> Several signs placed in juxtaposition to one another would constitute one large sign, and the regulation dealing with size would be a nullity if it permitted the dentist to accomplish through multiplicity of signs the effect which is denied through a single sign.

The fourth rule adopted by the board prohibited a dentist from using illumination on a sign other than that of the indirect type or of a type lighted from within and limited the illumination to no greater intensity than that provided by 100 watts of incandescent lighting or its equivalent, provided further that no colored illumination should be used nor any exposed luminous tube, nor any flasher, nor any intermittent mechanism be employed, provided also that no signs should be illuminated except during the time that the dentist or his associates are actually in the dental office and prepared to render service. It is evident, said the court, that this rule is intended to prevent all-night illumination. We are not in accord with the claim of the plaintiffs that this rule prevents a dentist from leaving the sign operating if he temporarily leaves his office. The legislature has provided that a dentist may not advertise by "glaring light signs, electric or neon." The rule as adopted by the board is in harmony with the intent and purpose of the dental practice act.

The fifth rule adopted by the board prohibited the practice of any dentist in an office where it is indicated, by sign or otherwise, that some one else owns or operates the office, with the sole exception that if a dentist has died his practice may be carried on for a period of six months under his name. The purpose of this rule, said the court, is not only to prohibit the practice of dentistry by any person whose name is not displayed on the office door or window but also to assure the public that the person whose name is so displayed is a practicing dentist in that particular location. The dental practice act provides specifically that it shall be unlawful to "make use of any advertising statements of a character tending to mislead or deceive the public." It is evident that this rule was adopted to carry out this provision of the act. In our opinion, the rule conforms to the intent and purpose of this portion of the dental practice act.

The sixth rule promulgated by the board regulated the size of professional card announcements, restricting the size of professional card announcements in newspapers or other similar circulating mediums to a space equivalent to a 2 inch column in width and 1 inch in length, with certain restrictions on the size and style of type used. The dental practice act, said the court, provides that dentists may make certain newspaper announcements. In our opinion, the sixth rule is a sound interpretation of that which the act permits and, as such, is not contrary to the necessary implications of the dental practice act. In our opinion, it was the intent of the legislature to establish the primary standard for the rule making body to follow and that the board in adopting the sixth rule has merely carried out the details in the administration of the dental practice act.

The court could find no sound basis for disturbing the rules adopted by the state board of dentistry and accordingly affirmed the decree of the trial court dismissing the action.—*Toole v. Michigan State Board of Dentistry (Michigan State Dental Soc., Intervener), 11 N. W. (2d) 229 (Mich., 1943).*

Society Proceedings

COMING MEETINGS

Annual Congress on Industrial Health, Chicago, February 15-16. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, February 14-15. Dr. Victor Johnson, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Orthopaedic Surgeons, Chicago, January 22-26. Dr. Myron O. Henry, 825 Nicollet Ave., Minneapolis, Secretary.

Annual Forum on Allergy, St. Louis, Jan. 22-23. Dr. Jonathan Forman, 394 East Town St., Columbus, Ohio.

Clinical Orthopaedic Society, Chicago, January 22-26. Dr. Myron O. Henry, 825 Nicollet Ave., Minneapolis, Secretary.

Society of Surgeons of New Jersey, Atlantic City, January 29. Dr. Walter B. Mount, 21 Plymouth St., Montclair, N. J., Secretary.

Western Section, American Laryngological, Rhinological and Otological Society, Los Angeles, January 22-23. Dr. Simon Jesberg, 500 S. Lucas Ave., Los Angeles, Chairman.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

66:471-596 (Nov.) 1943

*Late Effects of Lead Poisoning on Mental Development. R. K. Byers and Elizabeth E. Lord.—p. 471.
*Radioactive Iodine Studies in Childhood Hypothyroidism. J. G. Hamilton, M. H. Soley, W. A. Reilly and K. B. Eichorn.—p. 495.
Regulation of Level of Vitamin A in Blood of Newborn Infants. J. M. Lewis, O. Bodansky and L. M. Shapiro.—p. 503.
Effect of Maternal Rachitogenic Diet on Skeletal Development of Young Rat. J. Warkany.—p. 511.
Causes of Infantile Summer Diarrhea. E. Hormaeche, N. L. Surraco, C. A. Peluffo and P. L. Aleppo.—p. 539.

Effects of Lead Poisoning in Mental Development.—According to Byers and Lord it has not been generally recognized that lead poisoning occurring in early life usually has a disastrous effect on mental development. They present a follow-up study of 20 school children who had been hospitalized in infancy or early childhood because of lead poisoning. None of them exhibited striking evidence of encephalopathy during their primary admission, and all were adjudged to have made a complete recovery from lead poisoning when discharged from the original hospitalization. The authors emphasize the length of the cycle of ingestion, storage and elimination of lead in relation to the relatively short duration of the symptoms and signs allowing a diagnosis of lead poisoning. It seems probable that lead poisoning of the sort here discussed can at present be recognized in only a small percentage of cases. Failure of the normal processes of growth and development of the cortex prevented all but 1 of the 20 children from progressing satisfactorily at school. In addition to difficulties in the general intellectual and sensorimotor spheres, other evidence of interference with the normal development of the nervous system were found. Recurrent convulsions appeared in 3 of the children, at 4, 4½ and 5½ years of age. One girl who had peripheral neuritis as a baby acquired a positive Babinski sign, and 1 boy who was discharged from the hospital as well at about 3 years of age had hyperactive reflexes and sustained clonus at the left ankle when reexamined at 9 years. Behavior difficulties were common throughout the series. Much of this behavior could be classified as "forced reaction to stimuli in the environment" described by Strauss and Werner as an evidence of cortical damage. It was apparently the result of loss of the normal inhibitory function, thought to reside in the cortex. It was usually described as unreliable impulsive behavior, cruel impulsive behavior, short attention span and the like.

Radioactive Iodine Studies in Childhood Hypothyroidism.—Hamilton and his associates stress the usefulness of radioactive isotopes of iodine in the study of iodine metabolism, pointing out that they are of particular value in measuring the gross iodine metabolism of the thyroid in situ. The radioactivity of a single dose of radioiodine enables one to follow its metabolic fate. The radioiodine concentrated in the thyroid may be determined quantitatively without surgical removal of the gland, since the gamma rays emitted by it penetrate the overlying tissues and can be measured with a suitable detecting device, such as the Geiger-Müller counter. Thus, the addition of a trace of radioiodine to ordinary iodine serves to label all the iodine atoms in an administered sample. The 10 children included in these studies had severe hypothyroidism. It was observed that the thyroids of children with hypothyroidism and without goiters are able to concentrate only small amounts of orally administered iodine, as compared with the thyroids of normal children or adults. In these hypothyroid children the remaining thyroid tissue concentrated a larger percentage of a dose of 0.1 microgram than of a dose of 14 mg. of iodine. The thyroids of 2 children with goiters and with severe hypothyroidism took up relatively large amounts of iodine and by chemical analysis contained both thyroxin and diiodotyrosine in considerable quantities. The uptake curves of the thyroids as measured in situ were similar to those seen in hyperthyroidism in adults. Radioautographs made from sections of the thyroids of both of these children indicate that by the fifth day after the oral administration more of the iodine was in the cells than in the colloid.

American Journal of Medical Sciences, Philadelphia

206:561-700 (Nov.) 1943

Recognition of Meningococcic Infections. P. S. Strong.—p. 561.
Meningococcemia. E. P. Campbell.—p. 566.
Hyperkinetic Diseases. E. Moschcowitz.—p. 576.
Use of Sulfapyrazine in Infants and Children. H. L. Barnett, Anne M. Perley, G. B. Forbes and D. Goldring.—p. 599.
*Studies on Penetration of Sulfonamides into Skin: II. Sulfathiazole, Sulfadiazine and Sodium Sulfacetimide. E. A. Strakosch and W. G. Clark.—p. 610.
Gastrophotography in Natural Colors in Conjunction with Gastroscopy. H. A. Rafsky.—p. 618.
Blood Studies in Aged: Part II. Leukocytes in Aged Male and Female. B. Newman and S. Gitlow.—p. 622.
Effect of Myxedema on Hemopoiesis in Leukemia and Related Disorders. J. T. Paul, L. R. Limarzi and L. Seed.—p. 625.
Air Borne Cross Infection in Case of Common Cold: Further Clinical Study of Use of Glycol Vapors for Air Sterilization. T. N. Harris and J. Stokes Jr.—p. 631.
Bone Marrow in Normal Dogs. L. M. Meyer and F. Bloom.—p. 637.
*Toxicity of Penicillin as Prepared for Clinical Use. Dorothy M. Hamre, G. Rake, Clara M. McKee and H. B. MacPhillamy.—p. 642.
Disseminated Necrotizing Vascularitis—Toxic Origin of Periarteritis Nodosa. M. McCall and J. W. Pennock.—p. 652.
*Effects of Large Doses of Vitamin A Concentrate on Normal and Hypertensive Patients. R. D. Taylor, A. C. Corcoran, J. C. Shrader, W. C. Young and I. H. Page.—p. 659.

Penetration of Sulfonamides into Skin.—Strakosch and Clark performed in vivo experiments on guinea pigs and human beings to determine the penetration of sulfonamides from various vehicles into the skin. Skin biopsies were analyzed for total sulfonamide concentration after varying times of application. Sulfanilamide, sulfathiazole and sulfadiazine, in a comparable base at comparable concentrations and times of application, gave comparable tissue levels, demonstrating no difference in penetration into intact skin. Sodium sulfacetimide ("Albucid soluble"), on the other hand, gave greater penetration after a three day application time than the sulfonamide bases tested. Increasing the concentration did not increase the absorption by the intact skin of sulfanilamide, sulfathiazole and sulfadiazine. Even sodium sulfacetimide showed only a slight effect of concentration. Increasing the time of application increased the skin absorption of sulfonamide in all cases, especially of sodium sulfacetimide. Of seven ointment bases examined, two oil in water and five water in oil emulsions, the type of emulsion had no effect on the absorption of sulfonamide by the skin, including the sodium sulfacetimide. One water in oil emulsion was superior to the others tested. An ointment containing a solubilizer and a wetting agent in greater amounts than in the other bases studied did not give better absorption of sulfathiazole by the skin than the other bases. Injured skin absorbs much greater amounts of sulfonamides from ointments than intact skin. Sodium sulfacetimide is especially penetrating into injured skin. Injured skin absorbs sulfonamides from wet packs to a much greater extent than from ointments.

Toxicity of Penicillin.—Hamre and her associates in the course of experiments on gas gangrene observed that 7 guinea pigs which had been infected with Clostridium perfringens and treated subcutaneously with penicillin died, although they had shown no symptoms of gas gangrene. They had received from 2,600 to 4,000 Florey units per kilogram daily in seven doses daily for three to four days. The amounts of penicillin given to these animals were well below the toxic level for other animals, but the possibility remained that guinea pigs are

more susceptible to penicillin than other animals. To investigate this possibility, further experiments were undertaken. It was found that from 7,000 to 12,000 Florey units per kilogram daily of penicillin, as prepared for clinical use, given subcutaneously over a period of several days caused death of guinea pigs but not of mice or rabbits. However, a dose approximately that used clinically (1,000 Florey units per kilogram) given subcutaneously for twenty days did not kill guinea pigs. All animals given penicillin subcutaneously showed a severe reaction at the site of injection. Seven samples of penicillin prepared by different methods in two different places were toxic when given subcutaneously to guinea pigs for several days. Large doses of sodium ascorbate did not protect guinea pigs from the toxicity of repeated subcutaneous doses of penicillin.

Vitamin A Concentrate in Normal and Hypertensive Patients.—According to Taylor and his collaborators substances containing vitamin A, such as the nonsaponifiable fraction of butter, have been shown to increase urea and inulin clearances in normal dogs and in dogs deprived of dietary vitamin A, to increase the rate of glomerular filtration. Similarly, large doses of concentrates of the vitamin increased urea clearance in human beings. Although the increase in inulin clearance specifies the change as one associated with increased rate of glomerular filtration the mechanism of its increase remained unknown, and it is part of the purpose of this study to determine its nature. The authors also examined the effect of large doses of vitamin A concentrate in essential hypertension, since Govea, Peña and Villaverde recommended the use of the vitamin in this disease. The authors found that the administration of a preparation of vitamin A in amounts ranging from 100,000 to 400,000 units daily for from five to ninety days in 3 normotensive and 14 hypertensive patients did not alter the levels of arterial pressure. Observations of renal function in 2 normotensive and 11 hypertensive patients revealed increased effective renal blood flow in 9, increased glomerular filtration rate in 7 and increased tubular secretory capacity for diodrast in 4 of 7 hypertensive patients in whom this function was tested. The increase in effective renal blood flow was usually associated with increased cardiac output, the result of tachycardia and not of increased stroke volume. On the basis of these observations the authors arrive at the following conclusions: 1. Vitamin A concentrate is ineffective in the treatment of essential hypertension in doses of 100,000 to 400,000 units daily for from five to ninety days. 2. The vitamin concentrate causes renal vasodilatation and increased functional capacity for secretion of diodrast with increased cardiac output. The suggestion is made that it may have application in the treatment of degenerative renal diseases.

American Journal of Ophthalmology, Cincinnati

26:1135-1250 (Nov.) 1943

Choroideremia: Nature of Condition and Case Reports. R. G. Scobee. —p. 1135.
Further Observations on Autofundoscopy (Auto-Ophthalmoscopy of Eber; Purkinje Figure of Walker). L. C. Drews.—p. 1143.
Intravenous Pentothal Sodium Anesthesia in Ophthalmology. L. T. Post and E. N. Robertson.—p. 1155.
Survey of State of Ophthalmology in Philadelphia at Time of Founding of Section on Ophthalmology at College of Physicians: Personal Contribution to Celebration of Fiftieth Anniversary of Section, April 3, 1943. B. Chance.—p. 1164.
X-Ray Therapy of Inflammatory and Neoplastic Diseases of Eye. J. Borak.—p. 1170.
Parents' Role in Orthoptic Training. Frances Walraven.—p. 1175.
Amaurosis Following Nasal Hemorrhage: Report of Case. A. E. Long. —p. 1179.
Grocnouw's Corneal Dystrophy: With Case Report and Genealogic Chart. J. O. Wetzel.—p. 1183.
Treatment of Amblyopia. F. B. Fralick.—p. 1195.
Graphic Representation of Binocular Findings. E. Krimsky.—p. 1199.
Lipaemia Retinalis. M. L. Kauffman.—p. 1205.
"Through Evil, Good." G. Frey.—p. 1208.
Eyes Right and Down—Not Eyes Down and Right. T. D. Allen. —p. 1209.
Closure of Sclera After Removal of Intraocular Foreign Body by Posterior Route. W. C. Beil.—p. 1210.
New Material for Anterior-Segment Impressions. H. S. Sugar.—p. 1210
Refraction Clinic. A. E. Sloane.—p. 1212.

American Review of Tuberculosis, New York

48:279-360 (Nov.) 1943

*What Is the Clinical and Epidemiological Significance of Rare Bacilli in Sputum? F. M. Pottenger and J. E. Pottenger.—p. 279.
Egg Yolk-Potato Medium: Its Efficiency for Demonstrating Small Numbers of Tubercle Bacilli. K. T. Sasano and E. M. Medlar.—p. 297.
Acid Fast Bacilli in Patients of Nontuberculous Medical Service. E. M. Medlar, W. H. Ordway and G. S. Pesquera.—p. 304.
Standardization of Sedimentation Rate. J. W. Cutler.—p. 314.
Tuberculin Patch Test: Comparison with Mantoux Intracutaneous Test. B. A. Dormer, J. Friedlander, F. J. Wiles and R. Schaffer.—p. 324.
Immunization Against Tuberculoprotein (Tuberculin) Anaphylaxis. H. J. Corper and M. L. Cohn.—p. 329.
*Pneumoperitoneum: Its Scope and Limitations in Treatment of Pulmonary Tuberculosis. I. E. Rudman.—p. 334.
Ascorbic Acid in Tuberculous Navajo Indians. M. Pijoan and B. Sedlacek, with assistance by C. A. Elkin and R. L. Warren.—p. 342.

Significance of Rare Bacilli in Sputum.—The Pottengers submitted specimens of sputum from each patient to examination at intervals of from four to six weeks while under treatment and from many patients at longer intervals after discharge —in some cases for nearly fifteen years. A sterilized bottle is provided, and the patient is required to save everything expectorated. The patient is not trusted to separate lung from throat sputum. Three day specimens are required and, if the first one is negative, four or five additional specimens are collected. The sputum is examined by the dilution-flotation picric acid method and, when guinea pig inoculation is used, two thirds of the homogenized specimen or its concentrate is injected. Specimens are searched for a minimum of ten minutes (a total of about 200 microscopic fields) before they are declared negative. The authors think that acceptance of the Ziehl-Neelsen method as sufficient for determining the presence of tubercle bacilli is a cause of much inaccuracy both in diagnosis and in estimating the results of treatment; for this may show grossly positive sputum as negative. Case reports show that occasional bacilli may persist for a long time. The authors' experience indicates that, if the patient is clinically well, there is little danger from rare bacilli found by very sensitive methods, either to himself or to those with whom he associates. Sometimes larger numbers of bacilli will be temporarily discharged by one who has been clinically well, the patient returning at once to the rare or negative stage without reactivation of his disease. The persistence of bacilli occurs whether the patient has been treated by physiologic methods alone or by collapse procedures. The presence of occasional bacilli in sputum does not necessarily mean that the patient is suffering from clinically active tuberculosis, but it shows that active tuberculosis has been present. This finding may be consistent with good health and full working capacity. Patients with occasional bacilli are probably of greater danger to themselves than to those with whom they associate, because bacilli are present in the tissues and may produce endogenous spread in case the proper stimulus is present. As regards the danger to others, it would probably be greater to children than to adults, and to the less resistant than to the stronger. The presence of occasional bacilli in the sputum, as determined by exacting technics, is in the same relationship to diagnosis and cure as is the tuberculin test. It gives evidence of only limited value. The true estimate must depend on clinical judgment.

Pneumoperitoneum in Pulmonary Tuberculosis.—According to Rudman the reports on the efficacy of pneumoperitoneum in pulmonary tuberculosis ran the whole gamut of enthusiasm to pessimism. The advocates of pneumoperitoneum claim that the beneficial results brought about are due to (1) elevation of both hemidiaphragms giving rest to the diseased lung, (2) lymph stasis, which in turn promotes tissue fibrosis, and (3) pulmonary congestion and anoxemia, which in turn inhibit the growth of tubercle bacilli in the tissues and hasten reparative processes. The author shows, however, that these theoretical considerations do not always work out in practice; the mobility of the diaphragm may be impaired, subdiaphragmatic adhesions may limit the rise of the diaphragm, and the intra-abdominal pressure may cause a downward displacement of the abdominal viscera. But while in the advanced cases the presence of subdiaphragmatic adhesions, the extent of the lesions in the lung tissue and tonus of the diaphragm may nullify whatever benefits there are to be obtained from pneumoperitoneum, far better results are brought about when pneumo-

peritoneum is used in the early or moderately advanced case to enhance the value of phrenic neurectomy. Pneumoperitoneum is a far more formidable procedure than pneumothorax and therefore should be done with great caution and care. The author briefly describes the technic and then presents several case histories, in some of which pneumoperitoneum gave disappointing results. He summarizes the indications for pneumoperitoneum in pulmonary tuberculosis as follows: 1. It is indicated as a trial measure to determine diaphragmatic mobility and freedom from interfering subdiaphragmatic adhesions prior to phrenic interruption. 2. In cases in which a breakdown and reactivation of the tuberculous process have occurred after an effective phrenic operation, it may be possible by means of pneumoperitoneum to prevent reopening of the cavity. 3. Its greatest value lies in its ability to enhance the value of the diaphragmatic rise following phrenic interruption. 4. It is of value in preparing the patient for radical surgery and in making the lesion quiescent in less time than could be accomplished by bed rest alone. Pneumoperitoneum is of limited value as the sole therapeutic measure in pulmonary tuberculosis. Its benefits are not lasting.

Anesthesiology, New York

4:577-688 (Nov.) 1943

Effects of Drugs Used in Anesthesiology on Tone and Motility of Small Intestine: Experimental Study. R. F. Golden and F. C. Mann.—p. 577.
Chemical Absorption of Carbon Dioxide from Anesthetic Atmospheres. R. M. Waters.—p. 596.
*New Resuscitation Apparatus. J. Kreiselman.—p. 608.
Circulatory Effects of Increased Pressure in Airway. H. K. Beecher, H. S. Bennett and D. L. Bassett.—p. 612.
Anesthesiology in Military Medicine. E. M. Papper and W. C. Sheehan.—p. 619.
Complication of Diabetes During Spinal Anesthesia. M. C. Peterson, R. Robertazzi and Joan Goebel.—p. 625.
Electronarcosis. P. S. Ross, assisted by R. O. Allen.—p. 630.

New Resuscitation Apparatus.—The apparatus described by Kreiselman consists of an expansible bellows type bag of about 1,600 cc. capacity, a face mask and a valve placed between them. There are valves for the intake of air and oxygen and a safety valve which limits pressure to 20 mm. of mercury. The apparatus operates to inflate the lungs with either air or oxygen at a safe, controllable predetermined pressure. Normal respiratory exchange with atmospheric air can take place while the apparatus is applied. When breathing begins the patient is always in free communication with either atmospheric air or the gases in the bag. Gases from the lungs cannot mix with the gases in the bag. The apparatus operates equally efficiently in any position. The apparatus when used in conjunction with the prone pressure method of artificial respiration greatly increases the effectiveness of that method. The apparatus meets the mechanical requirements for satisfactory and safe resuscitation, using a simple technic, and is small, light, compact, inexpensive and mechanically simple.

Archives of Internal Medicine, Chicago

72:565-708 (Nov.) 1943

Chronic Pulmonary Osteoarthropathy: Dyspituitarism as Probable Cause. B. M. Fried.—p. 565.
Preparation of Synthetic Immune Serum and Nature of Immunity. D. K. Bacon.—p. 581.
*Therapy with Sulfonamide Compounds for Patients with Damage to Liver. O. L. Peterson, E. Deutsch and M. Finland.—p. 594.
Rhythmic Property of Human Heart. M. H. Nathanson.—p. 613.
Diagnosis of Lipoid Pneumonia by Aspiration Biopsy. L. Nathanson, D. Frenkel and M. Jacobi.—p. 627.
Syphilis: Review of Recent Literature. F. W. Reynolds, C. F. Mohr and J. E. Moore.—p. 635.

Sulfonamides in Damage of Liver.—Peterson and his associates studied the effects of the administration of sulfonamide compounds on the clinical course and hepatic function of 37 patients with various disorders of the liver. All patients studied were admitted to Boston City Hospital. Only those are considered in whom there was clinical and laboratory evidence of damage to the liver and in whom tests of hepatic function were made before and after a course of some sulfonamide compound. Thirteen of the patients had acute hepatitis. In all except 1 of these patients, who had a catarrhal jaundice, the damage to the liver was secondary to an acute pyogenic infection. The remaining patients had chronic disease of the liver and included 14 with portal cirrhosis, 5 with biliary cirrhosis, 4 with damage to the liver resulting from chronic congestive cardiac failure and 1 with diffuse carcinomatosis. To most of the patients the sulfonamide compound was given in the usual therapeutic doses and for a definite pyogenic infection. To a few, however, the drug was given because of a suspected infection, the presence of which was not substantiated. Sulfathiazole and sulfadiazine were each used alone for 14 patients; both were given in succession or on separate occasions to 7, and 2 received sulfapyridine. The authors found that in the patients with acute hepatitis associated with bacterial infections the sulfonamide therapy was almost invariably associated with improvement in hepatic function which paralleled the improvement in the underlying infection. In the patients with chronic damage to the liver, hepatic dysfunction was not aggravated by administration of sulfathiazole or sulfadiazine. There was some improvement noted as a result of such therapy in cases in which bacterial infection was adding to the hepatic injury. Severe toxic effects of sulfonamide therapy other than direct injury to the liver were unusually frequent in the patients with portal cirrhosis and were twice as common after sulfathiazole as after sulfadiazine. The authors conclude that the presence of damage to the liver should not be considered a contraindication to therapy with sulfathiazole or sulfadiazine in patients with bacterial infections against which these drugs are effective. Sulfadiazine is the drug of choice in such cases. Caution should be exercised in the administration of sulfonamide compounds to patients with severe portal (Laënnec's) cirrhosis of the liver.

Bulletin of Johns Hopkins Hospital, Baltimore

73:239-306 (Oct.) 1943

Experimental Evidence that Lesions with Basic Characteristics of Rheumatic Carditis Can Result from Anaphylactic Hypersensitivity. A. R. Rich and J. E. Gregory.—p. 239.
Cerebral Malaria: Case Report. R. Whitehill.—p. 265.
Lymphocytic Choriomeningitis: Report of Laboratory Infection. G. S. Hayes and T. L. Hartman.—p. 275.
Effect of Amphetamine (Benzedrine) Sulfate on Higher Nervous Activity. E. B. Alpern, N. Finkelstein and W. H. Gantt.—p. 287.

Cancer Research, Baltimore

3:729-808 (Nov.) 1943

Chemotherapeutic Studies on Transmitted Mouse Leukemia. C. M. Flory, J. Furth, J. A. Saxton Jr. and L. Reiner.—p. 729.
Chemical Studies on Mode of Action of Methylcholanthrene on Mouse Epidermis. C. Carruthers and V. Suntzeff.—p. 744.
Further Studies on Tumor Promoting Action of Fat. P. S. Lavik and C. A. Baumann.—p. 749.
Spontaneous Testicular Tumors in Mice. W. U. Gardner.—p. 757.
Testicular Changes Resembling Early Stages in Development of Interstitial Cell Tumors in Mice of the A Strain after Long Continued Injections of Pregnant Mare Serum. C. A. Pfeiffer and C. W. Hooker.—p. 762.
Attempts to Abrogate Immunity to Brown-Pearce Carcinoma. O. Saphir and M. Appel.—p. 767.
Importance of Dosage in Intradermal Immunization Against Transplantable Neoplasms. L. Gross.—p. 770.
Polytene Chromosomes in Two Mammary Carcinomas of Human Subject. J. J. Biesele and H. Poyner.—p. 779.

Connecticut State Medical Journal, Hartford

7:737-810 (Nov.) 1943

Medical and Surgical Aspects of Hypertrophy and Cancer of Prostate. H. H. Young.—p. 739.
Some Comments on Contributions of Hugh H. Young to Urology. C. L. Deming.—p. 743.
Sulfonamide Compounds in Treatment of Ocular Infections: Review. P. Thygeson.—p. 746.
Psychosomatic Medicine. R. Goldstein.—p. 758.
War and Deafness. M. H. Lurie.—p. 763.
First American Observations on Poliomyelitis: Dr. Charles S. Caverly. C. Barker.—p. 766.

Delaware State Medical Journal, Wilmington

15:167-180 (Sept.) 1943

Inter-American Cooperation in Health Work. A. R. Dreisbach.—p. 167.

15:181-196 (Oct.) 1943

Responsibility and Future of Organized Medicine. L. J. Jones.—p. 181.
Value of Studies of Circulation. J. H. Foulger.—p. 182.

Journal of Allergy, St. Louis

14:507-582 (Nov.) 1943

Vascular Allergy: III. J. Harkavy.—p. 507.
Studies on Hypersensitivity Due to Substances Employed in Fur Industry: I. Significance of Cutaneous Reactions to Fur Dye Dust Extracts. H. H. Shilkret and H. F. Swartz.—p. 538.
Allergic Manifestations in Atopic Individuals Following Injection of Tetanus Toxoid: Report of 2 Cases. H. Swartz.—p. 544.
*Anaphylaxis After Injection of Tetanus Toxoid. W. M. Edwards.—p. 552.
An Appraisal of Present Status of Prophylaxis Against Poison Ivy. F. A. Ellis.—p. 557.
Allergy in the Insane. M. Zeller and J. U. Edlin.—p. 564.

Anaphylaxis After Injection of Tetanus Toxoid.—After citing statistical figures on the incidence of severe reactions following immunizations with precipitated toxoid, Edwards reports the history of a man aged 29 who developed an anaphylactoid type of reaction after the administration of tetanus toxoid. The development of edema of the eyes and lips followed by collapse after a third injection of plain tetanus toxoid is obviously an anaphylactoid type of reaction. This is substantiated by skin tests and passive transfer studies to human skin. Allergy studies point to the veal infusion contained in the toxoid as the responsible factor. It is interesting that the patient gave no history of asthma or hay fever, and his skin tests with diagnostic allergens were all negative. This demonstrates that severe reactions do occur in the absence of a history of allergy. Cooke and his associates pointed out that all persons receiving tetanus toxoid should first be given skin tests. Gold discourages skin tests, but the apparent indifference of Gold to positive skin tests is certainly not shared by all. Edwards observed the sudden death of a young person who had not been given previous sensitivity tests twenty minutes after the injection of a second dose of plain tetanus toxoid combined with a third dose of typhoid vaccine. Autopsy revealed the presence of pulmonary edema. To minimize the significance of a positive skin test and then unhesitatingly administer the full dose parenterally is definitely contrary to the orthodox practice.

Journal of Industrial Hygiene & Toxicology, Baltimore

25:381-422 (Nov.) 1943

Method for Determination of Trinitrotoluene (TNT) Derivatives in Human Urine. S. S. Pinto and W. L. Wilson.—p. 381.
*Experimental Trinitrotoluene Poisoning with Attempts at Detoxification. M. I. Smith, B. B. Westfall and E. F. Stohlman.—p. 391.
Fluoride Ingestion and Bone Changes in Experimental Animals. E. J. Largent, W. Machle and I. F. Ferneau.—p. 396.
Effects of Repeated Exposure of Dogs to Monoalkyl Ethylene Glycol Ether Vapors. H. W. Werner, J. L. Mitchell, J. W. Miller and W. F. von Oettingen.—p. 409.
Determination of Approximate Lethal Dose with About Six Animals. W. B. Deichmann and T. J. LeBlanc.—p. 415.
Creosote Burns. A. D. Jonas.—p. 418.
Bronchial Asthma Due to Aluminum Dust: Case. L. H. Cotter.—p. 421.

Experimental Trinitrotoluene Poisoning.—Smith and his associates point out that one chemical change which uniformly has been found in experimental trinitrotoluene poisoning is the formation of a variable amount of diazotizable material in the tissues and body fluids, indicating the formation of reduced degradation products. It has been suggested that at least some of the reduced compounds may be detoxified by conjugation with glucuronic acid. If this is an essential mechanism of detoxification, ascorbic acid might play an important part, since it has been shown that it can detoxify phenol in a manner analogous to glucuronic acid. Experiments were undertaken to ascertain the effects of ascorbic acid in chronic trinitrotoluene poisoning in several animal species; animals highly susceptible to trinitrotoluene, as the cat, and animals with a high natural resistance to it. In the latter group rats were used, which do not require exogenous ascorbic acid, guinea pigs, in which exogenous ascorbic acid is indispensable, and rabbits, which are intermediate in this respect. It was found that the administration of ascorbic acid had little effect on the course of chronic trinitrotoluene poisoning in rats, guinea pigs or rabbits. In cats, which are relatively highly susceptible to trinitrotoluene poisoning, ascorbic acid appeared to have a slightly favorable influence on the course of intoxication. The distribution and elimination of reduced degradation products of trinitrotoluene were not materially influenced by the ascorbic acid treatment. The glucuronic acid output in the urine was not influenced by trinitrotoluene, and the somewhat augmented output in porphyrins noted in some animals was not affected by ascorbic acid treatment.

Journal-Lancet, Minneapolis

63:307-336 (Oct.) 1943

Studies on Conditioned Reactions and Their Clinical Implications. E. Gellhorn.—p. 307.
Wagner-Murray-Dingle Social Security Plan S. 1161 H. R. 2861: Analysis of Bill. J. C. Shields.—p. 313.
Remarks on Senate Bill 1161. J. P. Ritchey.—p. 315.
Medical Aspects of Civilian Defense. F. T. Foard.—p. 316.
Emergency Maternity and Infant Care Program, Administered by State Health Departments. Edith P. Sappington.—p. 320.

Journal of Nervous and Mental Disease, New York

98:457-570 (Nov.) 1943

Dissolution of Ego, Mannerism and Delusion of Grandeur. R. C. Bak.—p. 457.
Prognosis in Schizophrenia: Analysis of Prognostic Criteria in 150 Schizophrenics Treated with Metrazol or Insulin. L. S. Chase and S. Silverman.—p. 464.
Differential Diagnosis of Physiologic and Pathologic Sleep. L. Hess.—p. 474.
Emotional Facial Expressions of Cats in Bulbocapnine Catatonia. H. de Jong and Ethel Chase.—p. 478.
*Oxygen in Electroshock Therapy. Anne Holovachka.—p. 485.
Guillain-Barré Syndrome: Report of Case. R. F. Gayle Jr. and D. Groom.—p. 488.
Mediate Psychotherapy and Acute Homosexual Panic (Kempf's Disease). B. Karpman.—p. 493.
Dyshormonism in Psychoses and Its Correction by Shock. L. J. Meduna.—p. 507.
Endocrine Maldevelopment in Schizophrenia. L. Kerschbaumer.—p. 521.

Oxygen in Electroshock Therapy.—Holovachka reviews observations on 178 electroshock treatments without and on 125 with oxygen. A mask of nasal type was held over the nose the instant the current was sent into the electrodes. The oxygen was maintained at 8 liters per minute until cyanosis completely disappeared, a time which seldom exceeded four minutes. The total amount of oxygen consumed averaged 40 liters and was supplied from a large industrial cylinder. The question of increased effectiveness of the treatment with oxygen cannot be answered, because the number of cases are not adequate. However, the tolerance for treatments was increased so that the hazard to patients with cardiac dysfunction was diminished. One hundred and seventy-eight treatments without oxygen resulted in 54 complaints of headaches, 5 instances of remarkably persistent cyanosis, 75 confusional states, which were observed as late as six hours following a morning treatment, and 14 episodes of nausea and vomiting. These were contrasted with 125 treatments in which oxygen had been administered, resulting in 15 complaints of headache, no pronounced cyanosis, 1 confusional state and 1 case of nausea and vomiting.

Journal of Neurophysiology, Springfield, Ill.

6:329-458 (Sept.-Nov.) 1943

Acetylcholine Level of Rat Cerebral Cortex Under Conditions of Anoxia and Hypoglycemia. J. H. Welsh.—p. 329.
Accommodation and Autorhythmic Mechanism in Single Sensory Fibers. R. Granit and C. R. Skoglund.—p. 337.
Relation of Area 13 on Orbital Surface of Frontal Lobes to Hyperactivity and Hyperphagia in Monkeys. T. C. Ruch and H. A. Shenkin.—p. 349.
Responses to Electrical Stimulation of Single Sensory Units of Skin. G. H. Bishop.—p. 361.
Action Potential and Enzyme Activity in Electric Organ of Electrophorus Electricus: II. Phosphocreatine as Energy Source of Action Potential. D. Nachmansohn, R. T. Cox, C. W. Coates and A. L. Machado.—p. 383.
Formation of Acetylcholine—New Enzyme: "Choline Acetylase." D. Nachmansohn and A. L. Machado.—p. 397.
Effects on EEG of Chronic Lesions of Basal Ganglia, Thalamus and Hypothalamus of Monkeys. Margaret A. Kennard.—p. 405.
Hand and Foot Patterns of Low Electrical Skin Resistance: Their Anatomic and Neurologic Significance. C. P. Richter, Bettye G. Woodruff and Billie C. Eaton.—p. 417.
Nature of Paresis Following Lateral Corticospinal Section in Monkeys. B. W. Cannon, L. E. Beaton and S. W. Ranson Jr.—p. 425.
Removal of Acetylcholine by Cholinesterase Injections and Effect Thereof on Nerve Impulse Transmission. B. Mendel and Rosmary D. Hawkins.—p. 431.
Basis for Repetitive Activity in Phrenic Motoneurons. R. F. Pitts.—p. 439.

Kentucky Medical Journal, Bowling Green

41:365-396 (Nov.) 1943

Medical Problems in Kentucky. C. B. Stacy.—p. 368.
Where To, Surgery? B. W. Smock.—p. 373.
Rocky Mountain Spotted Fever: Case Report. F. M. Stites.—p. 376.
Rocky Mountain Spotted Fever in Kentucky. F. W. Caudill.—p. 376.
Few Observations in Gallbladder Surgery. E. W. Northcutt.—p. 383.
Pathology of Cells. J. E. Pinguely.—p. 384.
Studying the Patient as a Whole. A. F. Cornelius.—p. 386.
Transurethral Prostatic Surgery. W. R. Miner.—p. 388.
Linseed Oil. C. W. Reynolds.—p. 390.

Mental Hygiene, Albany, N. Y.

27:531-714 (Oct.) 1943. **Partial Index**

The Adolescent in a World at War. J. Slawson.—p. 531.
Chronophobia: Prison Neurosis. S. Russo.—p. 581.
Adviser System—Prophylactic Psychiatry on Mass Scale. S. H. Kraines.—p. 592.
Unique Structure and Function of the Mental Hygiene Unit in the Army. H. L. Freeman.—p. 608.

Minnesota Medicine, St. Paul

26:937-1022 (Nov.) 1943

*White Bile. A. Schwyzer.—p. 955.
*Abnormal Uterine Bleeding in Adolescence. Nora Winther.—p. 961.
Hemorrhage in Pregnancy. F. J. Schatz.—p. 968.
Hemorrhage in Menopause. L. M. Randall.—p. 976.
*Experiments with Rh Substance in Transfusion Reactions. R. W. Koucky.—p. 980.

White Bile.—According to Schwyzer, "white bile" is a misnomer. It is often not white but a colorless liquid like water, and it is not bile. However, it is in the place where normally bile is found. Hydrops of the gallbladder is not considered in this report. The author's experience with white bile is limited to 9 cases. In 2 of them normal bile appeared on the evening of the day of operation, in another after twenty-four hours and in the fourth one after thirty-six hours. They recovered. A fifth one died of cholemia after barely four days without return of normal bile, not even the slightest coloring. The other 4 cases are described in detail. In 1 case a chemical analysis of the white bile was made. It was found to contain neither bile acids nor bile pigment nor digestive ferments. What looked like white bile in another case was due to reflux of pancreatic secretion through a catheter in the common bile duct. The author stresses that the white bile as seen by the pathologist in sepsis rests on a fundamentally different cause from that seen by the surgeon in cases of obstruction of the bile ducts. Infection is not the basic cause in the surgical white bile. The underlying condition is obstruction to the bile flow, though frequently infection also is present. White or, rather, colorless bile is a secretion of the ducts with their glands. A water colored secretion from bile choked liver acini is not really thinkable. On the other hand, a poorly colored or even uncolored bile in overwhelming sepsis without noticeable obstruction is the result of greatly disintegrated liver, though even here some obstructive swelling may cooperate. Dextrose-galactose tests indicate that, in cases of even severe icterus experimentally provoked by ligation of the common duct, the liver function is not (at least for a long time) destroyed in this respect. Normally colored bile may start flowing immediately after decompression followed by recovery or may not appear until death. If normal bile does not appear thirty-six or forty-eight hours after releasing of the obstruction the prognosis becomes grave; though even after four days' delay recovery was observed.

Abnormal Uterine Bleeding in Adolescence.—Winther found that, of 7,634 women entering the University of Minnesota from 1938 to 1942, 22 per cent complained of irregular menstruation. During these four years 2,302 students have consulted the gynecologic department of the Student Health Service, 630 of whom came because of irregular bleeding. Treatment must be preceded by a careful examination to determine the cause of the abnormal bleeding. In the adolescent, abnormal bleeding is frequently self limited and is best left untreated. Endocrine therapy should be used cautiously. Desiccated thyroid is indicated when the serum cholesterol concentration is increased or the basal metabolic rate is decreased. Excellent results have been obtained in profuse menstrual bleeding with small doses of thyroid. An endometrial biopsy or hormone assays should precede the use of estrogens. They should not be given to the adolescent in large doses over a long period of time because they do not stimulate the growth of the ovaries but actually inhibit the pituitary and thus reduce the ovarian function. Progesterone also has been used in the treatment of abnormal uterine bleeding. Chorionic gonadotropin has given good results in profuse uterine bleeding in the adolescent. The dosage is difficult to calculate. Sixty-four patients with profuse menstrual bleeding were treated at the University Health Service from 1938 to 1942. Forty-six were given chorionic gonadotropin. Thirty-eight responded favorably. Equine gonadotropin (gonadogen) was given to 17 with improvement in 40 per cent of the cases. It is better not to give testosterone unless one understands its limitations and dangers. Combined treatment with estrogens and progesterone have been used successfully in amenorrhea and profuse bleeding. The immediate control of severe bleeding is the real problem. Rest in bed and oxytocics may control the hemorrhage. Posterior pituitary injection or ergonovine may be used as a temporary control. A curettage should be performed if the bleeding continues. Blood transfusions should be given in cases of severe anemia. Good results have been reported from using pregnant donors or lactating women. In the 2 cases in which moccasin snake venom was used by the author it did not affect the bleeding. Vitamin K may be given. General health measures are important in preventing recurrences of abnormal bleeding. Low dosage irradiation of the pituitary or ovary in the adolescent must be used with great caution.

Rh Substance in Transfusion Reactions.—Koucky presents the nature of the reactions due to Rh sensitization and discusses the Rh substance, the Rh antibody and other aspects of this problem, citing 16 illustrating case reports. He stresses that the Rh substance is similar to the A and B substances which determine the division into the four blood groups. Rh positive individuals cannot become sensitized. Rh negative individuals, if inoculated by transfusion—or during pregnancy from the fetus—may develop antibodies. The Rh substance varies in its antigenic property: some persons become sensitized very readily, while others do not. The antibody which can be demonstrated in the laboratory is the agglutinin. Apparently other types of antibodies are formed which are not detected by laboratory tests but will produce transfusion reactions or erythroblastosis in the fetus. The absence of demonstrable agglutinins, therefore, does not exclude the presence of dangerous antibodies. In pregnancy the antibodies may develop between the eighth and twelfth weeks, so that transfusions after early abortions must be handled as those later in pregnancy. An investigation of the obstetric history of women should be made prior to a transfusion and, if evidence of erythroblastosis in the babies is present, the possibility of sensitization should not be overlooked. Except under rare circumstances whole blood should never be given to pregnant or puerperal women until their Rh grouping is known. If multiple transfusions are to be given, a knowledge of the Rh grouping is very helpful. If Rh positive, the transfusion program can be carried out with no worry relative to Rh sensitization. If the patient happens to be Rh negative, an attempt may be made to complete the transfusion program within the five or six day period before antibodies can develop. After reactions develop, the transfusion program can be continued but only by using Rh negative donors. In transfusing erythroblastotic babies, the mother's blood should not be used.

Northwest Medicine, Seattle

42:275-306 (Oct.) 1943

Malaria. E. C. Faust.—p. 278.
Wartime Malaria in Oregon: Report of Case. B. Jeffries.—p. 285.
Treatment of Acute Arthritis. K. K. Sherwood and B. Zimmerman.—p. 288.
Early Postoperative Walking Following Abdominal Surgery. J. A. Rickles.—p. 292.

42:307-344 (Nov.) 1943

Obstructive Lesions of Colon: Diagnosis and Surgical Management. W. H. Bueermann.—p. 311.
Yellow Fever, Dengue and Sandfly Fever. E. C. Faust.—p. 315.
Vaginismus and Dyspareunia: Causes, Management and Treatment. C. Smail.—p. 322.
Acute Thrombocytopenic Purpura. J. H. Lehmann.—p. 325.

Public Health Reports, Washington, D. C.

58:1641-1668 (Nov. 5) 1943

Surveys of Milk Laboratories in War Areas in United States: II. Practices Observed in Making Direct Microscopic Examinations and Methylene Blue Reduction Tests. L. A. Black.—p. 1641.

58:1669-1700 (Nov. 12) 1943

Diet in Germany and the Occupied Countries During the Second World War. C. G. Spicknall, H. D. Fishburn and W. S. Baum.—p. 1669.
Surveys of Milk Laboratories in War Areas in United States: III. Observations on Sampling and Health Department Practice Relative to Bacteriologic Milk Analysis. L. A. Black.—p. 1681.

Rhode Island Medical Journal, Providence

26:187-230 (Oct.) 1943

Burns. C. C. Lund.—p. 197.
Acute Anterior Poliomyelitis (the 1943 Epidemic). K. K. Gregory.—p. 201.

26:231-274 (Nov.) 1943

Rh Factor—Its Role in Erythroblastosis Fetalis, and Intra-Group Transfusion Reactions. E. S. Brackett and B. E. Clarke.—p. 241.

Texas State Journal of Medicine, Fort Worth

39:365-414 (Nov.) 1943

*Use of Succinylsulfathiazole and Phthalylsulfathiazole as Intestinal Antiseptics. E. J. Poth.—p. 369.
Diagnosis of Amebiasis by Laboratory Methods. W. N. Powell.—p. 372.
Dissecting Aneurysm of Aorta. M. A. Zionts.—p. 375.
Surgical Treatment of Gastrojejunal Ulcer. G. R. Enloe.—p. 381.
Surgical Treatment of Ruptured Appendix. A. L. Ridings.—p. 384.
Intravenous Anesthesia. J. D. Nichols.—p. 387.
Nausea and Vomiting of Pregnancy. E. N. Smith.—p. 389.

Succinylsulfathiazole and Phthalylsulfathiazole as Intestinal Antiseptics.—According to Poth, sulfanilylguanidine, which has been used successfully in the treatment of bacillary dysentery, has little antibacterial activity when there are ulcerations in the bowel. This may explain the ineffectiveness of sulfanilylguanidine late in the disease. Succinylsulfathiazole alters the bacterial flora and reduces the bulk of the fecal material while rendering it semifluid. For this reason it can be used in the preoperative treatment of the gastrointestinal tract. Succinylsulfathiazole 0.25 Gm. per kilogram of body weight, divided into six equal portions, is administered at four hour intervals by mouth. Postoperatively no gastric suction is used, and as soon as the patients can take 30 cc. of warm water, and this usually occurs within twenty-four hours after operation, the administration of the drug, similar to the preoperative regimen, is reinstituted. The drug is tolerated surprisingly well. Its administration is continued for from twelve to fourteen days postoperatively. In a series of some 50 patients in whom primary sutures of the large bowel was undertaken there has been no instance of peritonitis or fecal fistula. The studies on acylated sulfonamides as intestinal antiseptics have been extended to new compounds, including phthalylsulfathiazole (sulfathalidine). This compound showed from two to four times the bacteriostatic activity of succinylsulfathiazole locally in the gastrointestinal tract, as indicated by the alteration of the coliform flora. Phthalylsulfathiazole, like succinylsulfathiazole, is sparingly absorbed from the gastrointestinal tract and should be more effective in treating bacillary dysentery than is succinylsulfathiazole or any other of the known sulfonamides.

Virginia Medical Monthly, Richmond

70:543 (Nov.) 1943

Our Responsibilities to Organized Medicine. J. M. Emmett.—p. 545.
Three Successful Cases of Total Gastrectomy. J. S. Horsley.—p. 549.
Some Facts and Fallacies in Diagnosis and Treatment of Certain Phases of Pulmonary Tuberculosis. S. E. Hughes.—p. 554.
Plans for Mission Hospital Center in Korea. R. M. Wilson.—p. 558.
Sulfaguanidine in Treatment of Acute Bacillary Dysentery: Study of 520 Cases. S. G. Page.—p. 561.
Note on Treatment of Pulmonary Tuberculosis by Administration of Hydrochloric Acid. F. L. Apperly.—p. 570.
Recent Activities Regarding Compulsory Health Insurance. F. I. Libby.—p. 572.
Triplets: Case Report. B. C. Grigsby.—p. 578.
Nature and Management of Cough. P. P. Vinson.—p. 579.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Royal Army Medical Corps, London

81:101-154 (Sept.) 1943

Intracranial Aerocele with Extension to Lateral Cerebral Ventricle: Case. J. A. C. Fleming, with clinical and pathologic notes by I. G. W. Hill and R. Walmsley.—p. 101.
Desert Sore: Preliminary Study. F. R. Bettley.—p. 107.
Mobile Blackwater Fever Treatment Teams. G. M. Findlay.—p. 113.
Arsenical Toxemia: Selection of Cases. H. J. Bell and A. E. Wilkinson.—p. 119.
Medical Officer of a P. O. W. Camp. R. S. Vine.—p. 128.

Lancet, London

2:465-496 (Oct. 16) 1943

*Thyrotoxicosis Treated with Thiourea. H. P. Himsworth.—p. 465.
*Sternal Puncture in Diagnosis of Malaria. G. J. Aitken.—p. 466.
Sternal Puncture in Diagnosis of Malaria. C. A. Rumball, B. G. Parsons-Smith and L. Nancekievill.—p. 468.
Gastroduodenal Hemorrhage Treated Medically with Enthusiastic Blood Transfusion. M. H. Pappworth and J. F. Loutit.—p. 469.
Intracisternal Injection of Potassium Phosphate. C. B. B. Downman and C. C. Mackenzie.—p. 471.
"Stress" Fracture of Femoral Neck. L. Henry.—p. 473.
Untoward Effects of Vitamin B_1. Z. A. Leitner.—p. 474.
Paroxysmal Hyperinsulinism Due to Islet Adenoma of Pancreas. M. S.-M. Rayner and C. H. Rogerson, with Note on Surgical Aspect by J. G. Jones.—p. 476.
Prostatic Enlargement Treated by Braasch-Bumpus Punch. W. A. Sewell and R. Mailer.—p. 479.
Hippuric Acid Excretion and Urine Volume. A. Palmer.—p. 481.

Thiourea in Treatment of Thyrotoxicosis.—Himsworth confirms Astwood's claims for the initial effects of thiourea in cases of thyrotoxicosis. Six cases have been treated. The author gives a detailed description of 1 severe case. The results in the other, milder cases were similar but less dramatic. In 1 case thyroidectomy was done because the goiter was compressing the trachea. In this case thiourea alone was given and proved a satisfactory preoperative preparation. The tissue removed at operation was hyperplastic and practically free from colloid. Two disadvantages have been found, and these have proved trivial. Thiourea has a nauseating taste, and at the beginning of therapy considerable nausea or even vomiting may occur. The second disadvantage is the peculiar sweet smell which it imparts to the breath. Discussing the mode of action of thiourea, the author says that the evidence at present available indicates that thiourea acts by interfering with the synthesis of the thyroid hormone.

Sternal Puncture in Diagnosis of Malaria.—According to Aitken, examination of the sternal bone marrow may help in diagnosis of malaria. He reviews a series of 105 cases to draw attention to the value and limitations of this method. To compare the aspects of marrow with those of the blood, sternal puncture was performed on 10 patients with parasites in the peripheral blood. The marrow fluid in each case contained a substantially higher proportion of cells containing parasites. In the other 95 cases sternal puncture was performed only when serial thick drops taken at six hourly intervals had proved negative. The author concludes that examination of sternal marrow fluid should be carried out in cases in which repeated examination of the peripheral blood is negative. It elucidates the diagnosis in a number of cases of obscure illness.

2:497-528 (Oct. 23) 1943

Spontaneous Subarachnoid Hemorrhage: Review of 150 Cases. C. G. Magee.—p. 497.
*Deposition of Protein Material in Implanted Pellets of Steroid Hormones. R. Deanesly and A. S. Parkes.—p. 500.
Transfusion in the Ambulance: Its Value in the Western Desert. H. K. Lucas.—p. 503.
Ehrlich's Megaloblasts: Associated with Low Mean Corpuscular Volume and Red Cell Diameter. H. Foy and A. Kondi.—p. 505.
Posterior Subastragaloid Arthrodesis in Fractured Os Calcis. J. R. Armstrong.—p. 506.
Congenital Cyst of Larynx. Jane I. Davidson.—p. 508.
Oxford Vaporiser for Endotracheal Anesthesia. M. A. Rushton.—p. 509.

Deposition of Protein in Implanted Steroid Hormones.—According to Deanesly and Parkes, crystalline steroid hormones are now often administered by the subcutaneous implantation of pellets made by compression. If a pellet is left

undisturbed in the subcutaneous tissue for some time it becomes in most cases enclosed in a tight connective tissue capsule. The extent to which the capsule prevents continued absorption is not yet clear: on the one hand there is good evidence that tablets may be absorbed at a regular rate throughout their life; on the other hand there are reports that capsule formation may bring to an end the absorption of active material while much of the pellet still remains. A fresh aspect of this problem was raised by Folley, who found that tablets of diethylstilbestrol which had been implanted for an appreciable time acquired, in addition to the connective tissue capsule, an interstitial deposit of protein matter. Folley holds that the interstitial deposit progressively inhibits absorption. Compressed tablets will inevitably have interstices that can be filled with protein, and considerable interest therefore attaches to a recently introduced method of making pellets for implantation by fusing the active substance into solid blocks. The authors have examined the behavior of fused blocks by comparison with that of compressed tablets. In experiments with estradiol, progesterone, testosterone and desoxycorticosterone acetate it was found that tablets made by compression were absorbed, after subcutaneous implantation, at about the same rate as blocks made by fusion. Both types of pellet acquired an interstitial deposit of protein material as described for diethylstilbestrol tablets by Folley, but microscopic examination showed that, whereas the deposit was continuous throughout the tablet, it was superficial only in the block. The formation of the protein deposit is not dependent on the presence of the capsule, as it appears within a few days of implantation, before encapsulation takes place. No evidence was obtained that the interstitial deposit of protein material slows up the absorption of the pellets.

2:529-560 (Oct. 30) 1943

Physician in War in Harvey's Time and After. W. E. Hume.—p. 529.
*Localized Neuritis of Shoulder Girdle: Report of 46 Cases. J. D. Spillane.—p. 532.
Observations on Typhus Epidemic. C. F. McConn.—p. 535.
*Rickettsial Agglutination Studies in Typhus. G. H. Stuart-Harris, G. K. C. Rettie and J. O. Oliver.—p. 537.
Costoclavicular Compression of Subclavian Artery and Vein: Relation to Scalenus Anticus Syndrome. M. A. Falconer and G. Weddell. —p. 539.
*Chronic Flexner Dysentery Treated with Succinylsulfathiazole. W. A. Caldwell and S. W. Hardwick.—p. 544.

Localized Neuritis of the Shoulder Girdle.—According to Spillane, cases with unusual neuritic features have come to be recognized in the armed forces which were not observed before the war in such numbers. The author himself has seen 20 such cases, and he has studied the records of others. A fairly clear clinical picture emerged of what might be called localized neuritis of the shoulder girdle. In 42 of these 46 cases the onset of the illness was characterized by sharp pain about the shoulder. The painful sites were usually along the upper border of the trapezius, over the spinati and the belly of the deltoid. Pain was sometimes felt along the inner border of the scapula, in the axilla or up the side of the neck. Many patients said it was severe and burning, and nearly all of them needed analgesics. The pain was commonly worse at night and disturbed or prevented sleep. It was aggravated by lying on the affected side and persisted acutely for from three to fourteen days; thereafter it rapidly subsided, but in a few cases a chronic ache was complained of for six or seven weeks. The pressure of braces or the weight of a gun or pack aggravated the discomfort. Pain was more severe in those muscles which subsequently showed atrophy. The muscles affected were the serratus magnus, spinati, deltoid, trapezius, sternomastoid and rhomboids. Effective movements of the shoulder girdle were greatly hampered. The wasted deltoid with paralysis of abduction, the hollowed supraspinous and infraspinous fossae of the scapula and the winging of the scapula, alone or in various combinations, produced a striking deformity of the shoulder girdle. The usual forms of treatment for neuritis did not seem to alter the course of the illness. If these patients are seen for the first time some months after the acute phase, the malady might be mistaken for poliomyelitis. The author differentiates the condition from poliomyelitis and also from acute brachial radiculitis or neuritis. He considers the possible role of injection neuritis and of repeated minor traumas. The preponderance of rightsided cases and the selective nature of the muscle wasting suggests that "injection neuritis" is not an important factor. It is quite possible that the long thoracic and suprascapular nerves could be injured by carrying a weight (pack and rifle) across the shoulder. Many of these patients, however, were employed in sedentary posts, and 26 of them developed the illness while convalescing in hospital.

Rickettsial Agglutination Studies in Typhus.—Stuart-Harris and his associates made investigations on the serums of patients convalescent from typhus contracted in the Spiddal area of Galway in 1942. Convalescent serums which were collected at intervals of from two to five months after the subsidence of fever were examined for agglutinins to the OX proteus organisms and to murine and epidemic rickettsias. The murine strain was the Wilmington (US) strain, and two epidemic strains were employed, namely the classic Breinl strain first isolated fifteen years ago and a strain recovered from a case of louse borne typhus in Cairo in 1942. Significantly elevated OX 19 titers in excess of 50 were present in 5 of the 9 cases and high OX 2 titers in 2 of these and in 1 other. No case exhibited a high OXK titer. Rickettsial agglutinins were present in 7 serums when examined with the Cairo strain, and 2 of these showed no reaction with Breinl or murine strains. Five of the serums reacted with all three rickettsial strains, and four of these showed a higher titer with the epidemic than with the murine organism, the remaining serum having similar titers with all three strains. The intensity or completeness of agglutination in these 5 serums was also less with the murine than with the epidemic strains, and in 2 instances only traces of agglutination were obtained with the murine organism, whereas both epidemic strains gave 2 plus agglutination. The authors also review observations on the serums of inoculated persons and on animals. They show that until recently the only laboratory method available for the differentiation of human typhus into epidemic and murine types was the classification by guinea pig reaction of the strains of rickettsias recovered from the patients into nonorchitic and orchitic categories. Plotz in 1943 showed by means of the complement fixation reaction that rickettsial antigens could be used to demonstrate specific differences between the two species of rickettsias and that the results with human serums indicated that Brill's disease was serologically related to epidemic rather than to murine typhus. The results of agglutination tests on serums from experimentally infected animals and of absorption tests on these serums indicate that rickettsial agglutination is another possible method of demonstrating specific differences between Rickettsia prowazeki and Rickettsia mooseri. The application of these findings to human cases of typhus suggests that rickettsial agglutination can be employed to differentiate epidemic and murine typhus and thus to throw light on the epidemiology of the disease. The data indicate that the cases of typhus in Galway were due to Rickettsia prowazeki, and this agrees with the observation of McConn that the disease was louse borne.

Chronic Flexner Dysentery Treated with Succinylsulfathiazole.—Caldwell and Hardwick report the history of a woman aged 36 who had chronic schizophrenia. She had had diarrhea and stools positive for Flexner dysentery intermittently for nearly eighteen months before succinylsulfathiazole therapy was instituted. Sulfaguanidine had been tried on four separate occasions without success. Yet after a single course of succinylsulfathiazole her symptoms cleared and the stools became negative for the dysentery bacillus.

Tubercle, London

24:113-130 (July) 1943

Wartime Increase in Tuberculous Meningitis in Relation to Infection from Milk. E. M. Williams and R. L. Milne.—p. 113.
Spontaneous Hemothorax: Report of Case. J. Almeyda.—p. 117.
Phrenic Paralysis: Its Place and Value in Treatment of Tuberculosis. F. L. Wollaston.—p. 121.

Der deutsche Militärarzt, Berlin

7:353-416 (June) 1942. **Partial Index**

Psychiatric Aids in Selection of Officer Candidates, with Special Consideration of Characterologic and Heredobiologic Aspects. E. Illing. —p. 353.
Relation Between C Hypovitaminosis and Inflammatory Processes of Gums. F. Faber.—372.
Desirability of Using Lead 4 (Chest Lead) During Electrocardiography in Military Hospitals. Dietzel.—p. 377.
*Experiences with Preserved Serum and Plasma in War. K. Lang and H. Schwiegk.—p. 379.
Rapid Opening of Skull Under War Conditions. K. W. Kondeyne. —p. 384.
Practical Temporary Prosthesis After Leg Amputation. C. Pfeiffer. —p. 386.
Foot Deformities in Relation to Fitness for Infantry Service. H. Grebe. —p. 392.
Syphilis of Tonsils in Military Medicine. T. Hünermann.—p. 394.

Preserved Serum and Plasma in War.—Lang and Schwiegk studied the use of preserved blood under war conditions. Their own experiences cover 92 cases, and in addition they review 258 cases observed by others. The effect of the infusion of preserved blood is the same as that of fresh blood. It is most effective in severe loss of blood and in shock. Not only did it counteract the circulatory collapse in dysentery, but in some cases it also reduced or counteracted the diarrhea. The effect is the same whether serum or plasma is used. The best form of preservation is the dry form. The dry preparations produced by the authors dissolve within a few minutes. To dissolve the dry powder they use the locally available water after boiling and filtration.

Münchener medizinische Wochenschrift, Munich

89:507-528 (June 5) 1942. **Partial Index**

*Differential Diagnosis of Early Typhus. Jacobi and Dörschel.—p. 507.
New Investigations on Tularemia in Turkey. E. Gotschlich.—p. 509.
Lichen Urticatus Caused by Vermin. F. Hamburger.—p. 514.
Practical Value of Bacteriologic Examination of Cadaver Blood and Organs. H. Eck.—p. 515.
Significance of Female Genital Hypoplasia for Sterility. F. H. Bardenheuer.—p. 518.
*Diagnosis of Osteosclerotic Anemia. L. Binder, O. Riedl.—p. 519.
Treatment of Sycosis Simplex. R. Wernsdörfer.—p. 521.

Differential Diagnosis of Early Typhus.—Jacobi and Dörschel state that the early diagnosis of typhus is of great importance in the prevention of the dissemination, because if the patient is thoroughly deloused during the first five days dissemination can be completely prevented. The blood sucking louse can obtain the infectious organism from the patient only after an incubation period of from five to seven days. The author observed the development of 108 cases of typhus during the early stages. A positive outcome of the Weil-Felix reaction can be expected from the fifth day on and occasionally from the third day. It definitely indicates typhus from 1:200 and upward. The dry blood agglutination according to Kudicke and Steuer is also valuable. It has the advantage of rapidity of execution. The following symptomatology is always suggestive of typhus: acute onset with fever between 39 and 40 C. within one or two days, severe headaches, ocular pains, redness of the conjunctivas, influenzal throat symptoms, general malaise and extreme weakness. The pulse is usually soft but not frequent. Relative bradycardia together with hypotension is observed in about 75 per cent of the cases. The bradycardia persisted even in the presence of high fever. An enanthem on the soft palate preceded the typhus exanthem in about 70 per cent of the cases. At the same time the entire pharynx is red as in influenza, for which typhus has been mistaken at this stage. Conjunctival injection is seen early in 75 per cent of cases. About 25 per cent of the patients showed signs of meningism. If rigidity of the neck and positive Kernig's sign are present in a patient in whom other symptoms indicate typhus, spinal puncture should be done because epidemic meningitis might exhibit the same initial symptoms as typhus or it may complicate typhus. Bronchitis was present in 80 per cent of the cases. Percussion revealed enlargement of the spleen in all cases. The exanthem appeared between the third and seventh day and it was frequently preceded by marbling of the skin. The spots are pale bluish, in contradistinction to the elevated roseola of typhoid, they are in the skin, not raised above it. In the later course the exanthem becomes darker, and in the presence of anemia and in dark skinned persons it may not be seen. The differential diagnosis of incipient typhus must consider influenza, pneumonia, abdominal typhoid, measles, epidemic encephalitis, toxemia following freezing, trichinosis, epidemic meningitis, five day fever and allergies.

Diagnosis of Osteosclerotic Anemia.—Binder and Riedl point out that Albers-Schönberg disease or marble bones appears early in life, but this is only the infantile form of osteosclerosis. There is also a form that occurs in adults; but whereas in the infantile form the skeletal changes predominate, in adults the hematologic signs are prominent and the bone changes may remain unnoticed. Wolf has differentiated the following forms of osteosclerosis: (1) osteosclerosis with myeloid leukemia, (2) osteosclerosis with myeloid and lymphoid aleukemia, (3) osteosclerotic anemia, (4) osteosclerosis with panmyelophthisis and fatty degeneration of marrow, (5) osteosclerosis of the newborn and (6) Albers-Schönberg's disease. The authors describe the clinical history of 2 patients in whom the diagnosis was made on the basis of the hematologic aspects and of experiences in the course of sternal puncture, which proved impossible because of extreme hardness of the sternum. One of these patients died; the second one improved after blood transfusion and after that was not heard from again. The authors think that these 2 cases were the first ones in which the diagnosis osteosclerotic anemia was made during life. They describe the roentgenologic aspects of the bones and blood pictures of both patients as well as the postmortem observations on one. The bone tissue showed great density, and there were only remnants of mostly fatty marrow. The authors stress that osteosclerosis has neither a typical blood picture nor uniform hepatic and splenic aspects. Extreme hardness of the sternum is an important diagnostic factor in that it directs further investigations into the correct channels.

Zentralblatt für Chirurgie, Leipzig

69:817-848 (May 16) 1942. **Partial Index**

Surgical Therapy of Central Cervical Fistula. B. Breitner and E. Ruckensteiner.—p. 821.
X-Ray Shadow of Large Solitary Calcification in Spleen. D. von Keiser. —p. 827.
*Prevention of Circulatory Collapse in Lumbar and Spinal Anesthesia. H. W. Pässler.—p. 834.
*Blood Coagulation and Thromboembolism. W. König.—p. 838.

Prevention of Circulatory Collapse in Spinal Anesthesia.—Pässler states that pholedrine (paredrinol or veritol) counteracts the harmful effects of vascular paralysis and thus prevents circulatory collapse. He studied the efficacy of pholedrine particularly in persons of advanced age, in a large number of lumbar anesthesias and in upper spinal anesthesias, the effects of which usually reach to the level of the nipples. Fall in blood pressure could be counteracted in from two to five minutes by an intramuscular injection of from 1 to 1.5 cc. of pholedrine. The systolic pressure, particularly, usually rose considerably higher than the pressure which existed before the anesthesia. The author feels that the object should be not to counteract the circulatory collapse but to prevent it. To accomplish this he gives prophylactically an intramuscular injection of pholedrine immediately after the injection of the anesthetic.

Blood Coagulation and Thromboembolism.—König believes that the synephrin treatment which he recommended in 1933 is still the most widely used measure in the prevention of thrombosis. The success reported by Lenggenhager with heparin (3,800 operations without embolism) induced him to try it. He administered heparin intravenously, usually in four doses, immediately after the operation and eight, twenty-four and thirty-two hours later. In all, 120 adult patients were treated in this manner. The following complications occurred: 2 pulmonary embolisms, 1 pulmonary infarct and 9 severe postoperative hemorrhages and hematomas. The large number of wound complications has discouraged him from further use of heparin. He feels that it is dangerous to interfere with the process of coagulation after operation. In addition to synephrin he employs carbon dioxide inhalation, massage of the legs, exercises and raising of the foot end of the bed.

Book Notices

Manual of Industrial Hygiene and Medical Service in War Industries. William M. Gafafer, D.Sc., editor. Issued under the Auspices of the Committee on Industrial Medicine of the Division of Medical Sciences of the National Research Council. Prepared by the Division of Industrial Hygiene, National Institute of Health, United States Public Health Service. [Military Medical Manuals, Volume II.] Cloth. Price, $3. Pp. 508, with 20 illustrations. Philadelphia & London: W. B. Saunders Company, 1943.

Undoubtedly the Bureau of Industrial Hygiene of the National Institute of Health must have been among the first of the official agencies to notice and respond to the extraordinary stimulus of wartime production. This manual is a reflection of the bureau's experiences in the development and application of environmental hygiene and public health methods to industry in general and to war industry in particular. The first of three sections describes the general details of setting up a medical program in a plant and the essential qualifications and functions of personnel. The discussion of plant medical facilities and medical services is excellent. There is, to be sure, some impatience with traditional methods which are regarded as not to be tolerated under circumstances affecting the efficient conduct of the war effort. At one point, for example, small plants are discouraged from employing physicians on an "on call" fee basis.

Prevention and control of disease in industry is the subject of extended treatment, both from the medical and the engineering standpoint. The contrast in space allotted to the dermatoses and to all other forms of occupational disease is rather striking, although presumably justified on the grounds of case incidence. Case finding is recognized as an important contribution of industrial medicine, especially communicable disease, but by extension the same principle applies to any defect or disability discovered under a program of industrial health examination and conservation. Problems in nutrition, fatigue, plant housekeeping and plant sanitation are all duly regarded as important factors in maintenance of the working force at the highest pitch of effective production and safe practice.

The final section of the manual concerns itself with the complexion of the working force and its maximum uti ization. It is concluded that every one can perform useful work, at least in some measure, unless illness in the common meaning of the term prevents. Programs for the placement of the handicapped should be conducted with this concept in mind. Employment of women in industry is viewed with equanimity, especially where medical supervision is individualized, since few, if any, occupational exposures have out and out sexual predilections. The final chapter presents all of the pertinent factors associated with sickness absenteeism.

This manual was obviously created to meet urgent wartime requirements. Its convenience and value will persist long after the emergency is over.

Strabismus: Its Etiology and Treatment. By Oscar Wilkinson, A.M., M.D., D.Sc., in collaboration with Richard W. Wilkinson, M.D., M.Sc., F.A.C.S., Instructor in Ophthalmology, George Washington University Medical School, Washington, D. C. Second edition. Cloth. Price, $4. Pp. 369, with illustrations. Boston: Meador Publishing Company, 1943.

The present edition is thoroughly up to date, including discussion of the recent literature and other evidence of a modern attitude toward the subject. The historical remarks and discussion of anatomy and physiology of the ocular muscles cover the standard material on these subjects. Various theories of etiology are discussed, the author favoring an innervational disturbance as the most important factor in concomitant squint. In the discussion of paralytic squint the various methods of examination are described, but one is left without a very definite idea as to the author's preferred procedure in typical cases. He seems too much inclined to stress the standard diplopia tests without proper emphasis on diagnosis by the deviations on cover test.

While devoting considerable space to orthoptic training, he seems to depend greatly on surgery in treatment. He properly emphasizes the value of very early diagnosis and treatment, including early surgery when necessary. The chapters on surgery show the evidence of a large personal experience, and here the author states clearly his own opinions as to choice of procedures and the amounts of correction possible with each. He feels it is possible, after careful study of the case, to estimate within fairly narrow limits the amounts of correction possible with each. He cautions against tenotomy of the internal recti, especially in children. Although recognizing the value of recession, for which he employs a technic of his own, he is against bilateral recession, as a rule, as likely to interfere with convergence. He prefers to all other operations his method of resection and often performs it on both external recti at one procedure. Original with the author is a metal brace which is sutured over the opposing muscle after resection to prevent pull on the resected muscle. While familiar with references in the literature to tendon transplantation and the O'Connor cinch, he has apparently had no experience with either procedure. A feature of the book is the series of illustrative cases, well illustrated and showing evidence of careful preoperative and postoperative examination. It well shows the prognostic value of a determination whether true or false retinal correspondence is present. While one might criticize some of the author's procedures in vertical deviations, especially tenotomy of the superior rectus, and could ask for a few more illustrative cases in this category, on the subject of concomitant strabismus the opinions expressed are, in general, sensible and show evidence of good judgment.

In format the book is up to modern standards.

The Reader Over Your Shoulder: A Handbook for Writers of English Prose. By Robert Graves, B.Litt., and Alan Hodge, B.A. Cloth. Price, $3. Pp. 446. New York: Macmillan Company, 1943.

This is one of the most suggestive and enlightening books on the writing of good English that have come to our attention. Such chapters as "The Peculiar Qualities of English," "The Ornate and Plain Styles" and three chapters on "The Principles of Clear Statement" should be read and reread by every one at all concerned with the production of writing in the field of science. The second half of the book is devoted to examinations and criticisms of the writings of some of the best authors regarding the English they use, including both British and American writers, although only a few of the latter. The author's position, both as a teacher of English and as a competent writer in his own right, is so much a one of leadership that his suggestions may be taken as most authoritative.

Unbidden House Guests. By Hugo Hartnack. Fabrikold. Price, $12. Various pagination, with illustrations. Tacoma: Hartnack Publishing Company, 1943.

When the reviewer first saw this book he wondered who would buy it at the excessive price; after reading the book he wondered who would want it at any price. The author uses cumbersome English. He indulges in many digressions from the subject at hand, sometimes in autobiography. He is unduly critical of persons with whom he does not agree. In speaking of the work of the American Medical Association and the articles published in THE JOURNAL, he states that they "will continue to be poor as long as no independent work by competent scientists is done in this country." The book deals with various pests, both plant and animal, found within the home and warehouse. Part I is devoted to general matters, such as the damage done by pests, the influence of climate and other conditions on their habits and methods of extermination. Part II, entitled "Plants," includes the bacteria and molds and is rather far fetched. The colon bacillus is not ordinarily considered a household pest, while the statement concerning botulism is erroneous. Part III deals with animal parasites and insects, and part V takes up the vertebrates, such as reptiles, rodents and birds. Part IV is missing. The illustrations are numerous, many of them being of the cartoon variety.

Handbook on Medical Records. By Esther Mayo Hodges-Sherard, A.B., R.R.L., Head of Medical Record Department, Homer G. Phillips Hospital, St. Louis. Second edition. Paper. Price, $1.50. Pp. 32. Chicago: Physicians' Record Company, 1943.

This little handbook for junior interns and medical record librarians is designed to answer questions relative to the routine for medical records. Much of the material is presented in the form of round table conferences. It is elementary and incomplete but may be helpful as an introductory textbook in some institutions.

Know Your Hay Fever. By A. P. Sperling, Ph.D., Instructor in Hygiene, College of the City of New York. With chapters on Clinical Applications by Arthur B. Berresford, M.D. Fabrikoid. Price, $2. Pp. 241, with 13 illustrations. New York: Frederick Fell, Inc., 1943.

For the patient who wants to know a great deal about hay fever this is a good book. It probably contains more information than many patients will want or need, but it is unlikely to disappoint any patient who looks through it for an answer to a question raised by his experience as a hay fever victim.

The book is divided into fifteen chapters, of which the first is a general introductory and explanatory chapter, detailing for the patient the symptoms which he knows all too well. The second chapter is an extensive discussion of pollens and hay fever. Chapters III, IV, V and VI deal with the differentiation of pollens and hay fever into spring, summer and fall varieties and a description of each. This is followed by a chapter on unseasonal or perennial hay fever due to diet, house dust and nonpollen types of sensitization. Then follows a chapter on the character and nature of hay fever in which the mechanism of sensitization is discussed. The next chapter deals not with the nature of hay fever but with the nature of patients and ruthlessly destroys what comfort may have accrued to the victim in the theory that he may be a genius or otherwise set apart on the superior side from his fellow human beings. A chapter is then devoted to theories of basic causes and one to the diagnosis and treatment of hay fever. A chapter follows on hay fever and the elements; that is, climatic influences on hay fever and its victims. Hay fever in various parts of the world other than the United States is described, and there is a chapter devoted to the characteristics of various well known hay fever resorts. Finally there is a disproportionately long and to the lay person not particularly useful section on research and the history of hay fever.

In general the material is excellent. It could have been presented more effectively in fewer words, and there is a question whether some of the more technical aspects have a true place in a book written for lay consumption. The section on hay fever resorts is good as far as it goes, but this reviewer, himself a hay fever victim, could have added a number of localities not mentioned by the authors. In connection with this listing of hay fever resorts, insufficient use was apparently made of maps and listings of pollen counts which have been in the literature for a number of years. To be specific, localities in Wisconsin, on the north shore of Lake Superior, are not mentioned. Minnesota's Arrowhead coast is mentioned only as a "probable" hay fever resort, whereas the fact is that it is known throughout the Middle West as excellent in this regard. This middle western area is designated as "remote." To an Easterner undoubtedly it is.

The Mechanics of Obstetrics. By Norris W. Vaux, M.D., Professor of Obstetrics, Jefferson Medical College, Philadelphia, and Mario A. Castallo, A.B., M.D., F.A.C.S., Assistant Professor of Obstetrics, Jefferson Medical College. Cloth. Price, $4. Pp. 217, with 200 illustrations. Philadelphia: F. A. Davis Company, 1943.

This small textbook has been written as a manual for a course in manikin obstetrics. The first few chapters are devoted to the female pelvis, the fetus, presentation and position, and labor. Pertinent facts are presented in outline form. The mechanism of normal and the various abnormal presentations are described and illustrated. The indications and conditions of the common obstetric operations are enumerated and their technic is described. The manual will serve admirably in conjunction with a manikin course. The wisdom of demonstrating operative procedures to medical students is open to question. It is the feeling of many teachers that student teaching should be limited to normal obstetrics.

Huber the Tuber: A Story of Tuberculosis. By Harry A. Wilmer, B.S., M.S., M.D., The University of Minnesota Medical School, Minneapolis. Introduction by J. Arthur Myers, Ph.D., M.D. Second edition. Cloth. Price, $1. Pp. 83, with illustrations by the author. New York: National Tuberculosis Association, 1943.

This book, originally published in 1942, has been taken over by the National Tuberculosis Association and is being circulated for the great value it possesses in educating the coming generation regarding this disease. John Kieran found it both educational and hilarious. Its cleverness makes the acquiring of knowledge regarding tuberculosis easy and interesting.

Encyclopedia of Substitutes and Synthetics. Edited by Morris D. Schoengold. Cloth. Price, $10. Pp. 382. New York: Philosophical Library, 1943.

This unique encyclopedia presents invaluable information that is not available even in the best libraries without thorough time consuming searches through the literature. The material is arranged in alphabetical order from Abalyn to Zola. Each compound is defined, and its properties, uses and substitutes are listed. Assistance was provided to the editor by seventy-five firms and four government agencies. The material is presented in a concise and readable manner and cross indexed adequately in an index of trade names and a subject index. Perhaps there is no other field of investigation that has caught the public's fancy to a greater degree than has the development of substitute and synthetic materials. This book will prove of great value to manufacturers, researchists and teachers. Its usefulness to the medical profession is evident, but it would be of added value if brief discussions on toxicity were included. Perhaps if the book progresses to a second edition a competent person or group will be invited to supply such information.

Sex in Marriage. By Ernest R. Groves, Professor of Sociology, University of North Carolina, Chapel Hill, and Gladys Hoagland Groves. Third edition. Cloth. Price, $2. Pp. 224, with 5 illustrations by Robert L. Dickinson, M.D. New York: Emerson Books, Inc., 1943.

The third edition of this useful book retains the valuable features of earlier editions, which have enjoyed well deserved success. The book contains chapters on sex and happiness, the background of sex attitudes, sex before marriage, the sex equipment, the beginnings of marriage, the love art of the husband, the love art of the wife, some common sex problems of marriage, planned parenthood, sex and life, and books suggested for additional reading. The book is written out of the long experience of the authors with marriage and family counseling, in which they have been exceptionally successful. They have succeeded in the difficult task of giving fully all necessary information without falling into the danger of producing merely another example of erogenous reading. The Dickinson diagrams with explanatory notes are helpful. This edition can be recommended with as much confidence as its predecessors.

Methods of Treatment. By Logan Clendening, M.D., Clinical Professor of Medicine, Medical Department of the University of Kansas, and Edward H. Hashinger, A.B., M.D., Clinical Professor of Medicine, Medical Department of the University of Kansas, Kansas City, Kansas. Eighth edition. Cloth. Price, $10. Pp. 1,033, with 138 illustrations. St. Louis: C. V. Mosby Company, 1943.

This big book evidently has met a need and has satisfied thousands of physicians. It covers a huge field, including such branches as pediatric treatment, physical therapy, hydrotherapy and anesthesia. Doubtless wisely, the two main authors have got a number of men to help them in writing special chapters. The book is to be recommended. As would be expected from the fact that Clendening is editor, the English flows easily.

Biochemistry for Medical Students. By William Veale Thorpe, M.A., Ph.D. Third edition. Fabrikoid. Price, $4.50. Pp. 476, with 39 illustrations. Baltimore: William Wood & Company, 1943.

This synopsis of biochemistry, intended to be complementary to textbooks of physiology, contains sufficient material in condensed form to enable one to understand physiologic and biochemical processes. On one hand it contains much information for its size, on the other it lacks important details which would excite interest in reading. Cross references help to keep the book concise. It is a good attempt to give an outline of biochemistry to medical students in order to facilitate study for examinations.

Births, Infant Mortality, Maternal Mortality, 1940. Graphic Presentation. U. S. Department of Labor, Children's Bureau, Publication No. 288. Boards. Pp. 34B, with illustrations. Washington, D. C.: Government Printing Office, 1943.

This is a table of charts and accompanying maps giving births, infant mortality and maternal mortality in the United States and the several states for the year 1940. It is a strictly factual presentation, without any endeavor to account for the facts which it sets forth. It is a convenient and graphic reference compilation which should be useful to health officers, sociologists and others having to do with public health and welfare, particularly in the field of infancy and maternity.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

LACTATION IN MEN

To the Editor:—During a recent discussion I made the statement that it was possible under certain circumstances for a male to nurse a child, having read somewhere that this custom was present among a certain savage tribe. I believe that the male breast is similar to the female in a rudimentary form and that it would be possible by certain stimulation for milk to be produced without the individual necessarily being abnormal, i. e. without any endocrine dyscrasia. M.D., New York.

ANSWER.—Several procedures are known to be used in primitive societies in order to induce lactation in men as well as in virgins and postmenopausal women. The lactogenic treatment most frequently used in these primitive tribes has consisted in direct application of irritating leaves to the breasts or, more simply, in making the infant suckle the mammary glands. It is quite possible by these procedures to produce galactorrhea, i. e. a flow of a milky or serous-milky mammary secretion. A similar phenomenon may occur spontaneously under certain physiologic conditions, such as the menopause. This secretion is, however, quantitatively and qualitatively inadequate for the infant's nourishment and growth. No instance of true lactation induced by these artificial means has ever been reported. True lactation is a rather complex and not well understood process requiring full growth of the epithelial ducts, development of the lobule-alveolar system and secretory activity of the alveolar cells of the mammary glands. These changes are the result of the interaction of a number of endocrine factors produced by the pituitary, adrenals, ovaries and placenta. Attempts to reproduce by means of synthetic endocrines the endocrine picture which is known to occur during the period of pregnancy and nursing have so far failed to induce lactation in nonpregnant women even when it leads to growth and engorgement of the mammary glands. Hence the fact that the male breast contains a system of patent ducts and rudimentary alveoli does not constitute evidence in the present state of knowledge that lactation can be produced in males. The few instances in which a milky discharge occurs in males are associated with evident endocrine disturbances such as pituitary chromophile tumor and, exceptionally, adrenal cortex carcinomas.

PAPILLARY LESIONS ON INFANT

To the Editor:—A 6 months old baby girl, white, had a lesion on the inner aspect of the arm just below the axilla. It was a papillary growth about 1.5 cm. in diameter and elevated about 1 cm. It looked just like a good many epitheliomas which I have had occasion to see. The baby also had six or eight smaller lesions on the scalp which looked more like boils not yet ready to open. There were several palpable cervical nodes. The general health and appearance of the baby were good. The mother stated that she fed well and apparently had no fever and was gaining weight. I treated the lesion on the arm with superficial x-rays, giving about 1,000 roentgens well shielded. This was about a month ago. Since that time I have repeated the procedure twice after getting the pathologist's report of a tuberculous granuloma. The section was taken just before the first treatment. The lesion has improved greatly since these three treatments. The scalp lesions may have grown a little but not rapidly. The mother states that one or two new lesions have appeared on the scalp. What shall I do about the scalp lesions? What is the probable prognosis in regard to the child? Should I take further steps to prove the diagnosis? The specimen was sent to a good pathologist, who did not seem doubtful of the diagnosis.
R. N. Long, M.D., Selma, Ala.

ANSWER.—It is impossible to make a definite diagnosis in this case without more information than is presented in the query. General pathologists sometimes need the help of experts in dermatologic histology in order to arrive at a better conclusion about cutaneous changes. It is quite possible that the lesion on the arm was, in fact, one of tuberculosis. Because of the papillary character of the lesion it could have been an example of tuberculosis verrucosa cutis. The other lesions on the scalp suggest sarcoidosis. These lesions do not break down and remain for some time before involuting. Their general histologic character resembles somewhat the changes present in tuberculous tissue. However, while there is a resemblance, the two disorders usually can be distinguished readily. Another possibility is that the scalp lesions are juvenile xanthomas. These may occur early in life and may look something like those described for this infant. It would be well to have a competent dermatologist examine this baby to arrive at a more certain diagnosis.

PHENYTOIN SODIUM FOR EPILEPSY

To the Editor:—A man aged 40 had an automobile accident about twenty-five years ago in which he suffered a fractured skull requiring trephining and ligation of an artery, from all of which he seemed to recover completely. About two years ago, twenty-three years after the accident, during a period of worry over business affairs, he had a typical epileptic seizure followed by a second a few weeks later. The patient was given capsules of phenytoin sodium and has not had any attacks since the two mentioned. However he has continued to take the phenytoin, one capsule daily. Does the prolonged use of phenytoin have any deleterious mental effect? Is it advisable to continue the capsules of phenytoin in doses of one capsule daily? Should the dose be reduced? How long should they be continued and in what doses? M.D., Pennsylvania.

ANSWER.—Phenytoin sodium has been used regularly in some thousands of cases, and no mental deterioration has been reported. Indeed, in many "idiopathic" cases there is an improvement in the intelligence. The dosage employed is small and should not be reduced; usually the effective dose is close to the toxic dose, and this may be as high as 0.6 Gm. daily. Usually treatment with any anticonvulsant has to be continued indefinitely, as the effect of the drug is purely symptomatic; but a trial without it may be made at the end of three years, especially if electroencephalography shows a normal or nearly normal pattern.

PRECOCIOUS ADOLESCENCE AT 17 MONTHS

To the Editor:—A boy aged 17 months is rugged, active and normal in every way except that his penis is much larger than normal and hair is developing at the base. Can you name the cause and suggest any treatment if it is a known disease? Joseph I. Grover, M.D., Dorchester, Mass.

ANSWER.—The patient described shows evidences of precocious adolescence, which has been attributed by different students to disturbances of the pituitary, sometimes involving neoplasm, or to disturbances of the pineal gland, the thymus or the adrenal cortex, or to atypical development of gonadal tissue. Rather extensive examination will be necessary in order to decide which of these is involved. At the age of 17 months this will not be too easy, but the problem is urgent because of the probability at this age of neoplasm in one of the areas mentioned. The patient should be seen in consultation by some clinician with wide experience in this differential diagnostic field before any attempt at treatment is made.

TRANSFUSION AND HYPERTENSION

To the Editor:—Will you kindly tell me whether there is any substantial reason for the use of blood plasma or whole blood transfusion in an attempt to reduce hyperpiesia? M.D., Ill.

ANSWER.—There is no rational basis for the use of blood plasma or whole blood transfusion in order to reduce hyperpiesia. Possibly the inquirer had in mind that, by transfusion, antipressor substances might be conveyed to the recipient; but the amounts transferred in this way would certainly be too minute to have any appreciable effect.

The blood pressure of hypertensive or even normal persons will be increased if transfusions are given in large enough doses and frequently enough, on account of the increased blood volume and, when whole blood is given, also from the induced polycythemia. A well recognized treatment for hypertension is venesection, not transfusion, though the beneficial effects of the former procedure are only temporary. In fact, under ordinary circumstances severe hypertension would be a contraindication for blood transfusion because a further increase in blood volume in such patients could bring about a condition dangerous to life. If it is desired to transfuse an anemic hypertensive patient, exsanguination transfusion should be carried out, in which blood is withdrawn from one arm at the same time that the blood is infused in the other.

THERAPY FOR MUCUS OF ASTHMA

To the Editor:—Is there any remedy that will reduce the amount of sticky consistency of the mucus in asthma? I have used potassium iodide, ammonium chloride, fluidextract of lobelia, antipyrene, ephedrine sulfate, epinephrine, aminophylline and whooping cough antivaccine.
George H. Heitmuller, M.D., Washington, D. C.

ANSWER.—A prescription consisting of apomorphine hydrochloride 2 grains (0.13 Gm.), potassium iodide 5 drachms (20 Gm.) and syrup of cherry to make 4 ounces (120 cc.) taken in a dose of 1 teaspoon every four hours has been found useful in reducing the sticky consistency of the mucus in asthma. Intravenous injections of 7½ grains (0.5 Gm.) of aminophylline mixed with 1,000 cc. of 5 per cent dextrose have also been of aid, and in many cases 1 cc. of epinephrine plus a liter of 5 per cent dextrose intravenously has promptly relieved the attack. Intravenous injections of 10 cc. of aminophylline (3¾ grains, or 0.25 Gm.) have also been of great help.